



Rialtas na hÉireann
Government of Ireland

Climate Action Plan 2024



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1. The Critical Nature of the Challenge

Key Messages

State of Play

- The world's climate is changing rapidly with temperatures increasing faster since 1970 than in any other 50-year period over at least the last 2,000 years
- It is virtually certain that 2023 will have been the warmest year on record
- Human influence has warmed the atmosphere, ocean and land, leading to widespread and rapid change, including changes to our weather system which has caused widespread adverse impacts across the globe
- Continued emissions of GHGs will cause further warming and changes to our climate leading to increased risks to people and nature
- Unprecedented growth in renewables is being driven by dramatic cost reductions, increased policy support and improved competitiveness in relation to fossil fuel alternatives

Current and Future Action

- Rapid and significant reductions in GHG emissions are required if we are to meet the 2015 Paris Agreement Goals
- The European Green Deal commits to delivering net-zero GHG emissions at EU level by 2050; with Ireland committed to achieving a 51% reduction in emissions from 2021 to 2030, and to achieving net-zero emissions no later than 2050
- While the benefits of transitioning to a low carbon economy are increasingly being recognised, action to reduce emissions must be significantly accelerated in the period to 2030
- Ireland must act now to secure an economy-wide low carbon future for all its citizens

Expected Outcomes

- Climate Action Plan 2024 sets out the roadmap to deliver on Ireland's climate ambition. It aligns with the legally binding economy-wide carbon budgets and sectoral ceilings that were agreed by Government in July 2022

1.1 Introduction

Our climate is changing rapidly and is transforming our world. Since 1850 there has been an increase of over 1.1°C in average global temperature, and the increase since 1970 has been faster than in any other 50-year period over at least the last 2,000 years. Warming is being propelled by increases in greenhouse gases (GHGs) in the atmosphere mainly produced when we burn fossil fuels and power industrial processes, together with emissions associated with land-use. Over the period 2013 to 2022, human-induced warming has been increasing at an unprecedented rate of 0.2°C per decade and reached 1.26°C in 2022. In 2023, the World Meteorological Organisation's Global Annual to Decadal Climate Update indicated that global temperatures are likely to surge to record levels in the next five years. Increased GHG emissions are being driven by unsustainable patterns of production and consumption. Today, atmospheric carbon dioxide (CO₂) concentrations are higher than at any time in at least 2 million years, and concentrations of methane (CH₄) and nitrous oxide (N₂O) are higher than at any time in at least 800,000 years.

1.2 Human Influence

Human influence has warmed the atmosphere, ocean and land leading to widespread and rapid change. This is affecting our weather and leading to changes in the frequency, duration and intensity of heatwaves, rain, droughts, and cyclones in every region of the world. Climate change is disrupting human and natural systems, and climate-related loss and damage to people and nature is taking place. Ecosystem functions and services that human well-being depends on are being undermined, and climate change impacts and risks are becoming more complex and difficult to manage.

The future is projected to see multiple climate hazards occurring simultaneously, further compounding the risks for people and nature across the globe. It is also clear that some impacts of climate change, such as loss of ice sheets and rising sea levels, will be irreversible for centuries or millennia.

A series of exceptional climate- and weather-related events were recorded in 2023. Antarctic sea ice extent was at record-lows for the time of year in January, February and May 2023. In June 2023 global average sea surface temperatures reached unprecedented levels and the north Atlantic recorded exceptionally warm sea surface temperatures, with several extreme marine heatwaves. In July 2023 scientists reported Earth's hottest days on record and summer 2023 saw heatwaves in Europe, North America, and China with consequent impacts

for people and ecosystems, including widespread wildfires in Greece and Canada. Both September and October 2023 were the warmest on record and it is virtually certain that 2023 will be the warmest year on record with temperatures greater than 1.4°C above the pre-industrial average.

Scientists warn that without rapid, deep, and sustained reductions in carbon dioxide (CO₂) and other GHGs such as methane (CH₄) and nitrous oxide (N₂O), global warming will be greater than 2°C above pre-industrial levels and, at current emission rates, could rise to 2.5-2.9°C by the end of the century. Limiting warming to 1.5°C will substantially reduce loss and damage to people and to ecosystems, although it will not eliminate them altogether.

The Sixth Assessment Report (AR6) of the Intergovernmental Panel on Climate Change (IPCC) sets out the most up-to-date scientific information in relation to climate change globally. It highlights the need for urgent, effective, and equitable action, and confirms that climate change is threatening the health and livelihoods of people around the world, as well as ecosystem health and biodiversity. The Synthesis Report published in 2023 makes it clear that, without immediate and deep emissions reductions across all sectors, limiting global warming to 1.5°C is beyond reach.

AR6 also makes clear that predicted changes in response to changes in the climate system, some of which are set out below, will also become larger as warming increases:

- Rising sea-levels threatening land and particularly coastal infrastructure;
- Extreme weather, including more intense storms and rainfall affecting our land, coastline, and seas;
- Further pressure on our water resources and food production systems with associated impacts on river and coastal ecosystems;
- Greater political and security instability;
- Displacement of populations with increased numbers of climate refugees;
- Heightened risk of the arrival of new pests and diseases;
- Poorer water quality;
- Changes in the timing of lifecycle events for plants and animals on land and in the oceans.

It highlights the link between climate change and biodiversity loss and underscores the need to safeguard biodiversity and ecosystems as a fundamental part of climate resilient development.

1.3 Paris Agreement

It is, therefore, essential that the international community steps up its efforts towards meeting the Paris Agreement objectives of:

- Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognising that this would significantly reduce the risks and impacts of climate change;
- Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low GHG emissions development, in a manner that does not threaten food production;
- Making finance flows consistent with a pathway towards low GHG emissions and climate-resilient development.

The Paris Agreement and the Sustainable Development Goals (SDGs) recognise that the impacts of climate change will be felt by all, but that these impacts will be uneven.

Vulnerable communities and people around the world – in particular women and girls – face devastating impacts to their livelihoods and greater challenges in adapting to the long-term effects of climate breakdown.

At COP26 countries reaffirmed the Paris Agreement goal of limiting the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit it to 1.5°C. Countries also stressed the urgency of action ‘in this critical decade’ when carbon dioxide emissions must be reduced by 45% to reach net zero around mid-century. During the COP26 process Ireland signed up to a number of international agreements and commitments. These included:

- Becoming a signatory to the High Ambition Coalition (HAC), to support global efforts to limit the temperature rise to 1.5°C;
- Joining the Beyond Oil and Gas Alliance (BOGA), to lead the transition away from global oil and gas production;
- Participating in the Climate and Clean Air Coalition Ministerial, to accelerate action to reduce short-lived climate pollutants.

At COP27 Parties agreed on the establishment of new funding arrangements including a fund for Loss and Damage to support vulnerable countries to cope with the impacts of climate change. The new fund and funding arrangements will support vulnerable countries and communities to avert, minimise, and address both the economic and non-economic

impacts of climate change, including impacts on livelihoods, cultural heritage, and ecosystems. The new fund aims to fill gaps in the existing landscape of Loss and Damage support, including by providing long-term support for communities for recovery and reconstruction post-climate disaster.

COP28 saw the conclusion of the first Global Stocktake (GST) which assessed Parties progress towards the achievement of the collectively agreed goals of the Paris Agreement. It found that despite overall progress on mitigation, adaptation and means of implementation and support, Parties are not yet collectively on track towards achieving the purpose of the Paris Agreement and its long-term goals. The decision did for the first time recognise the need to transition away from fossil fuels if Parties are to keep warming under 1.5*. It also called for ambitious new targets for renewable energy and energy efficiency.

The first GST occurred in a critical decade for climate action, as the decisions and actions taken now have immediate effects and will have intergenerational impacts for thousands of years. The *Emissions Gap Report 2023* published ahead of COP28 found that significantly more ambitious and rapid action is required this decade to deliver the emissions reductions required to meet the Paris Agreement goals.

1.4 Ireland Impacted Also

Ireland has experienced first-hand the consequences of climate change as set out in the Climate Status Report for Ireland 2020, including:

- All seasons have seen a rise in temperature and the annual average surface air temperature has increased by over 0.9°C in the last 120 years;
- There has been a reduction in the number of frost days and shortening length of the frost season;
- Sea levels around Ireland have risen by approximately 2 to 3mm per year since the early 1990s;
- Projections predict a significant reduction in average annual levels of spring and summer rainfall with a substantial increase in the frequency of heavy precipitation events in winter and autumn.

These changes will cause extensive direct and indirect harm to Ireland and its people, with predicted impacts including increased likelihood of groundwater, river, and coastal flooding; increased coastal erosion; increased pressure on water supply and water quality; and changes in wind speeds and storm tracks. The impact of climate change will be felt by every individual, household, and community in Ireland. The outcomes of the EPA's Climate in the

Irish Mind study illustrate that there is a high level of awareness of climate change and its impacts, and there is a broad consensus on the need for strong and early action to reduce Ireland's GHG emissions and to make Ireland climate resilient.

Therefore, there is an onus on us to mitigate the magnitude of long-term climate change by acting now to reduce GHG emissions, and to increase the capacity of carbon sinks such as forests and wetlands. In addition, short-lived pollutants with high global warming potential (such as methane, nitrous oxide and others), which together with carbon dioxide are responsible for climate change, are also damaging to human health and have, for example, been shown to be linked to respiratory diseases. Reductions in these emissions will not only address the climate challenge but will also improve our quality of life.

1.5 European Green Deal

The European Green Deal frames Europe's response to climate change. It recognises the challenges of transition and aims to be just and inclusive, paying attention to regions, industries and citizens who will face the biggest challenges as Europe transforms to a climate-neutral, fair and prosperous society, with a modern, resource-efficient and competitive economy.

The Green Deal commits to delivering net-zero GHG emissions at EU level by 2050. It also increases the EU-wide GHG emissions reduction target to at least 55% for 2030 to limit warming to 1.50C and align with the goal of the Paris Agreement. The EU has completed work on the revision of its climate, energy and transport-related legislation under the 'Fit for 55 Package' in order to align current laws with the 2030 and 2050 ambitions. Ireland fully supports this enhanced ambition at EU level.

The war in Ukraine has had a significant impact on the cost and security of our energy supply. In response to this, the EU launched the REPowerEU Plan in 2022 which aims to phase out the use of Russian fossil fuels and fast-forward the green transition. This includes enhanced energy savings, diversification of energy supplies and accelerated roll out of renewable energy in homes, industry and power generation by 2027.

1.6 Climate Action is Accelerating

Across the globe action is accelerating to reduce GHG emissions. In Europe the legislation to reduce emissions by at least 55% by 2030 is now in place and in the US, the Inflation Reduction Act represents the largest investment in emissions reduction in US history. Worldwide, renewables – including solar and wind energy – are replacing fossil fuel-based energy systems as costs have plummeted and capacity has rapidly increased. Similarly, numbers of electric vehicles are increasing as battery technology has improved and production costs have reduced. The economic benefits of the transition to a low carbon economy are being increasingly recognised and acted upon internationally which points to the need to act now to ensure Ireland's economic future in a low-carbon world. This imperative is reflected in the Government's *White Paper on Enterprise* which emphasises the need to integrate decarbonisation commitments into enterprise policy to maintain competitiveness.

1.7 Taking Action in Ireland

Ireland is committed to achieving climate neutrality no later than 2050 with a 51% reduction in GHG emissions by 2030. These legally binding objectives are set out in the Climate Action and Low Carbon Development (Amendment) Act 2021. The Climate Act supports Ireland's transition to net-zero and the achievement of a climate neutral economy no later than 2050. It also establishes a legally binding framework with clear targets and commitments, to ensure the necessary structures and processes are in place to deliver our national, EU and international climate goals and obligations in the near and long term. Against this background, strategies must be devised to reduce and manage climate change risks through a combination of mitigation and adaptation responses.

The National Development Plan 2021 - 2030 (NDP) sets out the investment priorities that will underpin the implementation of the National Planning Framework, through a total investment of approximately €165 billion. The NDP has been designed to ensure that it supports the Government's climate ambitions. For the first time in Ireland, climate and environmental assessment of the NDP measures has been undertaken, along with an assessment of the alignment of the NDP as a whole with the principle of a green recovery. Post COVID-19, Ireland's National Recovery and Resilience Plan (NRRP) prioritises a sustainable, equitable, green and digital recovery, in a manner that compliments and supports the Government's

climate ambition. Following the announcement made in Budget 2024, a new Infrastructure, Climate and Nature Fund is to be established with money available from 2026.

Climate Action Plan 2023 set out an ambitious all-of Government response to the challenges posed by climate change. Implementation to the end of Q3 2023 stands at 67%. Oversight of the delivery of Climate Action Plan 2024 by the Department of the Taoiseach will continue to ensure that critical coordination across all Departments and Agencies is in place. This will mean that stakeholders remain focussed on timely implementation in their areas and anticipate any corrective measures needed.

Since 2019, Climate Action Plans have seen a big step-up in our engagement with citizens and communities through more coherent mobilisation of existing structures and initiatives to inform, engage, motivate, and empower people to take climate action. We recognise that individuals and communities will be at the heart of the low-carbon transition and that not everybody is equally placed to readily respond to the policies and initiatives that will be implemented by this Plan. Therefore, through our work to empower individuals and communities to act, we will seek to recognise different capacities and starting points so that positive choices can be made for the future that will bring long-term benefits to all communities across Ireland.

It is impossible to predict how the next decade will unfold. The pace of individual, technological, scientific, societal and economic change will not be precisely in line with our assumptions today. In line with legislation, this Plan will be revised and renewed every year, following consultation with key stakeholders. These updates will be informed by the latest analyses and by our performance against targets and will include any new or corrective actions that we may need to stay on track towards our overall 2030 targets and our ultimate objective of achieving a transition to a competitive, low-carbon, climate-resilient, and environmentally sustainable society and economy by 2050.

While much of this Plan focuses on climate mitigation – the imperative to reduce our emissions of GHGs and thereby reduce warming – we also need to focus on climate adaptation. This is addressed primarily in chapter 22 of this plan but is also mainstreamed across the plan as a whole. People throughout Ireland have already experienced first-hand the impacts of climate change, particularly through floods and storms, and the subsequent damage caused. Events like these, and the expected increase in their frequency and intensity, highlight the need for adaptation measures to help the country cope with the effects of climate change. The National Adaptation Framework sets out the actions we are taking to reduce our vulnerability and increase our resilience in response to climate change.

This Climate Action Plan sets out the roadmap to deliver on Ireland's climate ambition. It aligns with the legally binding economy-wide carbon budgets and sectoral ceilings that were agreed by Government in July 2022. This will enable Ireland to meet 2030 targets and be well placed to meet mid-century decarbonisation objectives. This will also deliver cleaner air, warmer homes, a more secure energy system and a better quality of life for Irish citizens.

2. Where We Stand

Key Messages

State of Play

- Estimates from the Environmental Protection Agency (EPA) indicate that Ireland's greenhouse gas (GHG) emissions fell by 1.9% in 2022 compared to 2021, driven by higher fuel prices, reduced use of nitrogen fertiliser, increased renewable energy, behavioural change, and regulation
- Initial indications for 2023 show a stronger fall in emissions from electricity, agriculture and heating.
- This reduction falls short of the level of abatement required to meet national and international targets. Further, corrective actions are included in Climate Action Plan 2024 in response to this (see chapter 5)
- The key sources of Ireland's overall GHG emissions in 2022 are agriculture (34.3%), transport (17.1%) and energy industries (14.8%)
- Ireland has expended 47% of its emissions for the first carbon budget period (2021-2025) in the budget's first two years

Current and Future Action

- The Climate Action and Low Carbon Development (Amendment) Act 2021 requires Ireland to achieve a 51% reduction in GHG emissions by 2030 (relative to 2018 levels), and net-zero emissions by no later than 2050

Guided by our 2030 and 2050 targets, the programme of carbon budgets and sectoral emissions ceilings introduces more immediate and sector-specific emissions reduction targets that provide a pathway towards the 2030 51% reduction target and the 2050 net-zero goal

The EPA's projections demonstrate the need for the full and accelerated implementation of measures in Climate Action Plan 2024, and future Climate Action Plans

Expected Outcomes

1. Climate Action Plan 2024, together with our Long-term Climate Strategy, will set the strategic direction for meeting our climate targets

2.1 Trends in Ireland's Emissions to Date

Ireland's greenhouse gas (GHG) emissions have undergone a considerable shift in the three decades since 1990.¹ According to the Environmental Protection Agency's (EPA) inventory data, the rate of emissions reduction was modest up to 2008, with efforts to decarbonise constrained by strong economic activity. While an economic downturn in 2008 saw GHG emissions drop, they began to trend upwards again from 2011 as the economy picked up, with an overall peak in 2018. Trends in Ireland's emissions over the previous three decades contrast with many other EU Member States. This is in part due to Ireland's significant economic development in the 1990s leading to increased emissions, while in other EU Member States emissions reductions were already underway.² This context illustrates why Ireland's current emission reduction targets require greater ambition relative to some similar countries.

In the context of COVID-19, emissions in Ireland decreased by 3.6% in 2020 and rose again by 4.7% in 2021 as some sectors recovered. The latest provisional data³ indicates in 2022 emissions fell by 1.8% compared to 2021, driven by higher fuel prices, reduced use of nitrogen fertiliser, increased renewable energy, behavioural change, and regulation. Excluding Land Use, Land-use Change and Forestry (LULUCF) emissions, the EPA's provisional figures indicate a reduction of 1.9% in emissions.

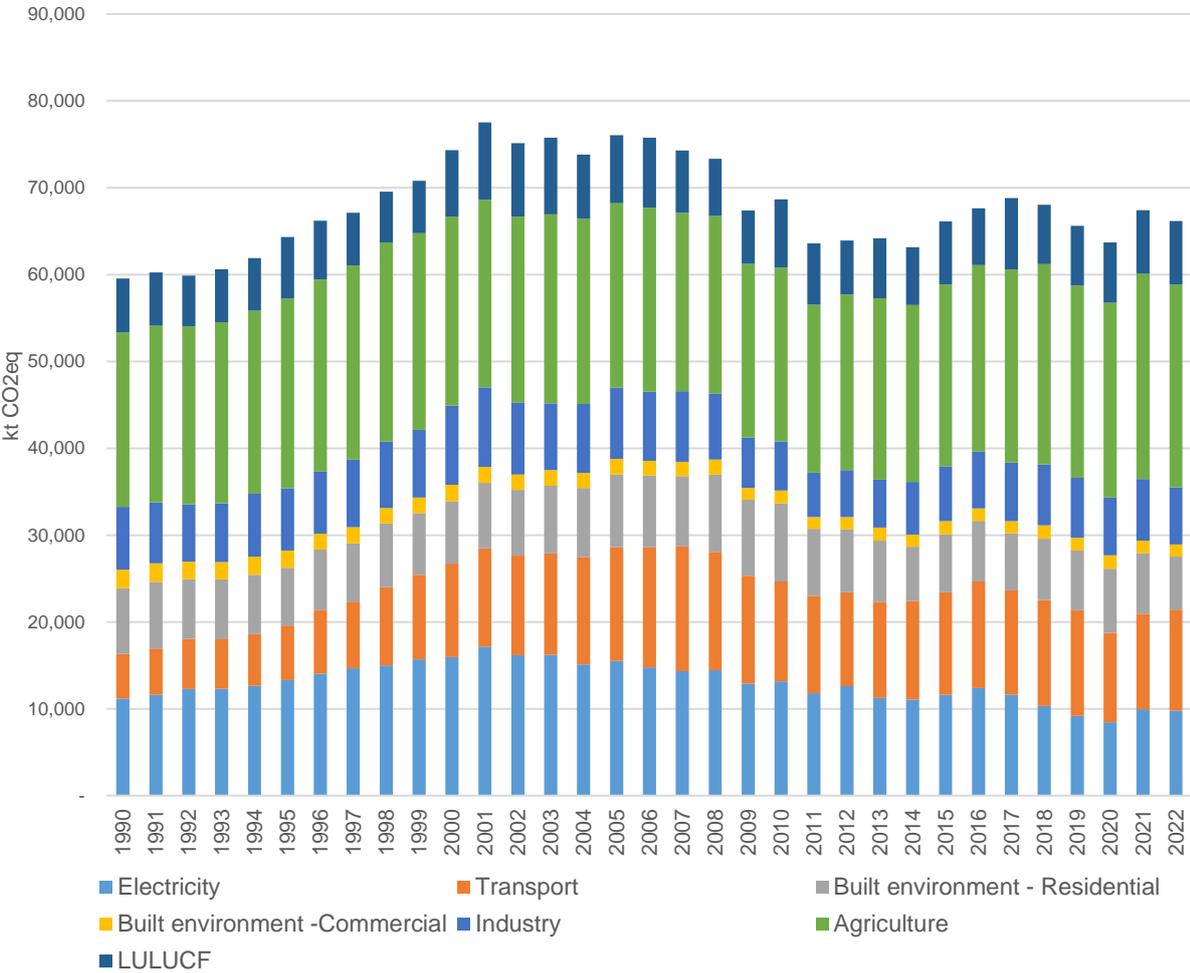
As set out in Figure 2.1, this decrease in total emissions relative to 2021 was evident in reductions in the electricity generation, industry, built environment (residential) and agriculture sectors.

¹ Greenhouse gas emissions trends and inventories published by the EPA. See <https://www.epa.ie/our-services/monitoring--assessment/climate-change/ghg/>

² European Environment Agency's GHG data dashboard@ <https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer>

³ <https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/irelands-provisional-greenhouse-gas-emissions-1990-2022.php>

Figure 2.1 – Ireland’s GHG Emissions Inventories (Provisional) 1990-2022



Agriculture is our largest source of emissions, representing 34.3% of total national GHG emissions. In 2022, agriculture emissions fell by 1.2%, largely due to reductions in chemical nitrogen fertiliser use, contributed to by increased prices due to the Russian invasion of Ukraine. The reduction in emissions achieved through the reduction in chemical nitrogen fertilizer use was partly offset by an increase in emissions from enteric fermentation (see Chapter 16).

The transport, electricity (primarily power generation), LULUCF and built environment (residential)⁴ sectors respectively represent 17.1%, 14.4%, 10.7% and 9.7% of total emissions. Electricity emissions fell by 1.9% due to an increase in renewable electricity generation, coupled with a reduction in the use of coal, oil and peat generation. Built

⁴ Chapter 15 'Built Environment' comprises both the 'Residential' and 'Commercial' elements of the Built Environment sector.

environment (residential) emissions fell by 12.7% in 2022 due to the impact of higher fuel prices, enhanced regulation of solid fuel use, and milder weather. Although in the transport sector, the fastest growing source of emissions over the past three decades, emissions increased by 6% as the rebound from COVID-19 restrictions continued, they remained 4.6% below pre-COVID levels. The main source of LULUCF emissions, which fell by 0.5% in 2022, is from grasslands on organic soils that have been drained for agricultural production. Net grassland emissions were 6.8 Mt CO₂eq. in 2022, while forest land became a net source of emissions in 2022 (0.4 Mt CO₂eq.) as more trees reached harvesting age.

It should be noted that refinements to the EPA's *National Emissions Inventory* are a feature of the international monitoring and reporting processes that underpin its production every year. For each refinement, there is a need to recalculate emissions back to 1990 so as to ensure consistency when comparing across different years. However, this can mean that emissions figures referenced in previous Climate Action Plans and related documents may vary due to ongoing revisions and updates to the inventory.

Ireland's efforts to reduce emissions and achieve its national climate objective of becoming net-zero by no later than 2050, is not only vital for our climate and environment, but also our future economic performance. The National Competitiveness Council's Annual Challenges Report⁵ (September 2023) noted that while significant steps have been taken towards delivering renewable energy and reducing GHG emissions, the current level of progress could be detrimental to Ireland's competitiveness in the long run. The report notes that improving our performance in areas relating to renewables, sustainability, and emissions reductions will be a key determinant of our future competitiveness.

Furthermore, the Irish Fiscal Advisory Council's (IFAC) research paper *What climate change means for Ireland's public finances*⁶ highlights the potential impact a changing climate will have on Ireland's economy and public finances. The paper assesses how our public finances will be affected by (i) compliance costs, (ii) transition costs, and (iii) costs associated with extreme weather events. The paper cites the Irish Government Evaluation and Economic Services Spending Paper developed jointly by the Department of the Environment, Climate and Communications (DECC) and the Department of Public Expenditure, NDP Delivery and Reform, *Estimating the Potential Costs of Compliance with 2030 Climate and Energy Target*,⁷ which estimates that costs of non-compliance could equate to approximately €0.35

⁵ <https://www.competitiveness.ie/publications/2023/ireland%20s%20competitiveness%20challenge%202023.pdf>

⁶ <https://www.fiscalcouncil.ie/wp-content/uploads/2023/10/What-climate-change-means-for-Irelands-public-finances-Casey-and-Carroll-2023-Irish-Fiscal-Advisory-Council.pdf>

⁷ <https://assets.gov.ie/246850/5982d0ec-1590-4caf-8c40-ce8bf178f5fc.pdf>

billion annually in the period up to 2030, rising to an estimated €0.7 billion annually in the longer run. The IFAC also estimates that transition costs could reduce Exchequer revenue by an annual rate of 0.9% (about €1.5 billion in today's money) in the period up to 2030. In terms of Government expenditure, and depending on the extent of private sector investment, the IFAC estimates that the Government may face annual costs of between €1.6 billion and €3 billion over the years 2026 to 2030.

The IFAC also found that additional costs to the State arising from the provision of supports to respond to more frequent and adverse extreme weather events could amount about €0.5 billion or 0.2% of GNI*, and notes that limiting these risks could require further adaptation costs beyond the €0.1 billion per annum allocated for flood defenses in the National Development Plan.

2.2 Ireland's National Climate Targets

Under the Climate Action and Low Carbon Development (Amendment) Act 2021, Ireland's national climate objective requires the State to pursue and achieve, by no later than the end of the year 2050, the transition to a climate-resilient, biodiversity-rich, environmentally sustainable, and climate-neutral economy. The 2021 Act also provides for a reduction of 51% in GHG emissions by 2030, compared to 2018 levels.

These emission reduction targets are supported by enhanced climate governance and reporting frameworks, as well as annual Climate Action Plans, carbon budgets and sectoral emission ceilings. The carbon budgets and sectoral emissions ceilings introduce more urgent and sector-specific emissions reduction targets within the broader pathway to the respective 51% reduction and net-zero objectives for 2030 and 2050. Further information regarding carbon budgets and sectoral emissions ceilings is provided in chapter 3.

Our statutory national climate objective and 2030 targets are aligned with Ireland's obligations under the Paris Agreement and with the EU's objective to reduce GHG emissions by at least 55% by 2030 compared to 1990 levels, and to achieve climate neutrality by 2050. Further information regarding the alignment of Ireland's climate objectives with EU legislation is contained in chapter 6.

Box 2.1 – Ireland’s EU Climate Targets

Ireland’s EU Climate Targets

EU Member States contribute collectively to their commitments under the Paris Agreement, which aims to keep global warming to well below 2 °C above pre-industrial levels, and to make efforts to limit the increase to 1.5 °C above pre-industrial levels.

The EU established an EU-wide Emissions Trading System (ETS) for certain high-emitting sectors and separately set legally binding national targets for emissions reductions in non-ETS sectors.

Within the ETS, participants are required to purchase allowances for every tonne of emissions emitted, with the amount of these allowances declining over time to ensure achievement of an EU-wide target of a 62% GHG emissions reduction by 2030, relative to 2005 levels. Ireland has 109 installations in the ETS sector.

For non-ETS sectors, which includes emissions from agriculture, transport, buildings, and light industry, Member States’ nationally binding targets (for the period 2021 to 2030) are covered by the Effort Sharing Regulation (ESR). Under the ESR, Ireland is required to reduce its emissions from these sectors by 42% by 2030, relative to 2005 levels.

Together, the ETS and ESR will facilitate achievement of the EU-wide target of at least a 55% GHG emissions reduction by 2030 as set in the European Climate Law.

The EU’s new regulations are particularly relevant to the LULUCF sector given its unique emissions profile as outlined in chapter 17.

2.3 Projections for Ireland’s Emissions

The EPA’s latest GHG emissions’ projections for the period 2022-2040⁸ show that, when only accounting for the impact of implemented and existing policies, Ireland’s total emissions are expected to decrease by 11% in 2030, compared to 2018 levels. This is known as the *With Existing Measures* scenario and illustrates the level of potential abatement before

⁸<https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/irelands-greenhouse-gas-emissions-projections-2022-2040.php>

including the additional impact of many of the planned measures outlined in Climate Action Plan 2021 (CAP21), Climate Action Plan 2023 (CAP23) and this new Climate Action Plan.

Factoring in the additional measures from CAP21 and CAP23, under the EPA's *With Additional Measures* (WAM) scenario, results in a projected decrease in GHG emissions of 29% in 2030 relative to 2018 levels. Under the WAM scenario, the projections assume significant emissions reductions in key sectors such as electricity generation, residential buildings, transport, commercial and public services, and agriculture, with full and early implementation of existing policy commitments by 2030, including:

- Achieving 80% of electricity demand from renewable sources;
- Retrofitting 500,000 homes to a BER B2 or cost optimal equivalent standard;
- Installing 680,000 heat pumps;
- A 20% reduction in total vehicle kilometres travelled;
- 845,000 private electric vehicles (EVs) and 95,000 commercial EVs;
- 5.7 TWh of biomethane used across the heat sector (split between residential, commercial/public services, and industry);
- District heating growth to 2.7 TWh;
- Methane reduction measures (e.g., slurry additives, reduced slaughter age, feed additives and breeding optimisation);
- Reduced fertiliser sales to 300 kt of nitrogen products;
- Water-table management on 80,000 ha of drained agricultural grassland;
- Afforestation rates increased to 8,000 hectares per annum.

Under the EPA's projections, emissions in the first two carbon budgetary periods (2021-2025 and 2026-2030) are expected to exceed their limits by a margin of 24%-34%, with the sectoral emissions ceilings for both budgetary periods projected to be exceeded in almost all sectors including: electricity; industry; transport; and agriculture. An overshoot in one carbon budgetary period will require an equivalent reduction in the emissions allowed in the following period, making the level of abatement to be reached in the subsequent period more challenging.

It should be noted that under the WAM scenario, the EPA excludes several CAP23 measures from its analysis as it could not yet identify a clear and feasible implementation pathway to allow it account for the associated abatement potential.⁹ DECC is working

⁹ See Chapter 5 'Choosing the Pathways' for further information regarding the excluded policies and measures.

with relevant sectors and the EPA to ensure that future Climate Action Plans contain sufficient detail to allow measures to be accounted for in the WAM scenario.

However, the EPA's projections report also indicates that if all the unmodelled measures in CAP23, and the yet unallocated emissions savings, were accounted for, the projected emissions reduction in 2030 would be 42%, 9 percentage points below our 2030 target. This is a significant residual gap that must be addressed if Ireland is to achieve our legally binding, emissions reduction targets.

This Climate Action Plan sets out further policies, measures and actions to close this gap and ensure compliance with our carbon budgets and sectoral emissions ceilings as adopted by the Government in 2022. Identification of new policies, measures and actions; the elaboration of delivery pathways; and the accelerated and full implementation existing commitments will also enable Ireland to meet its EU obligations for the period 2021 to 2030. This Climate Action Plan sets out further policies, measures and actions, including:

Agriculture

- Develop ecosystem services through the creation of a national carbon farming framework.
- Incorporate the 2023 Teagasc marginal abatement cost curve measures into the Climate Action Plan.

Built Environment

- Draft the General Scheme of a Heat Bill to establish a regulatory model for district heating that ensures consumer protection and the delivery of a vibrant district heating industry.

Electricity

- Develop a methodology to incentivise and enable industrial heating facilities to participate in flexible demand initiatives from 2024.
- Issue a recommendations paper on market options to incentivise Long Duration Energy Storage.

Industry

- Develop a work programme for implementing the National Hydrogen Strategy and ensure appropriate governance arrangements are in place to ensure its delivery.

Transport

- Establish a new dedicated cross-Departmental strategic working group on alternative fuels in transport.
- Enhance rail connectivity to ports, including completion of phase 1 of Shannon-Foynes to Limerick rail freight line rehabilitation works, and 'Rail and Sail' passenger ticketing.
- Accelerate the implementation of smart and sustainable mobility projects through the Smart and Sustainable Mobility Accelerator project, launched under the Sustainable Mobility Policy Pathfinder Programme – a comprehensive training and capacity-building programme designed to support Local Authorities and stakeholders.

3. Policy to Date and Expected Impact of Planned Policies

Key Messages

State of Play

- The Climate Act 2021 strengthens Ireland's climate governance framework by requiring annual updates to the national Climate Action Plan and periodic updates to our Long-term Climate Strategy, as well as the implementation of a programme of carbon budgets and sectoral emissions ceilings
- Climate Action Plan 2024 (CAP24) seeks to build on the progress made under Climate Action Plan 2023 by delivering policies, measures and actions that will support the achievement of our carbon budgets, sectoral emissions ceilings, and 2030 and 2050 climate targets

Current and Future Action

- Ireland's first carbon budget programme, and the associated sectoral emissions ceilings, were given legal effect in 2022
- CAP24 reflects the emissions reduction limits set by our carbon budgets and sectoral emissions ceilings, identifying policies, measures and actions that are required to assist in staying within these budgets and ceilings
- Reflecting the high uncertainty associated with the Land Use, Land-use Change and Forestry (LULUCF) emissions inventory; the series of planned inventory refinements; and the continued volatility for LULUCF baseline emissions to 2030 and beyond, CAP24 puts in place ambitious activity targets for the sector that will be kept under review in the light of emerging evidence from the inventory refinements and Phase 2 of the Land-use Review
- CAP24 also sets out an approach to deal with unallocated savings no later than 2025, that significantly relies on exploring emerging and carbon removal technologies

Expected Outcomes

- CAP24 and our Long-term Climate Strategy will set the strategic direction for meeting our climate targets
- The policies, measures and actions set out in this Climate Action Plan will assist in delivering the required greenhouse gas emissions abatement to meet our climate targets

3.1 Ireland's Emissions Reduction Targets

As noted in the previous chapter, the Climate Action and Low Carbon Development (Amendment) Act 2021 commits Ireland to reducing our greenhouse gas (GHG) emissions by 51% by 2030, compared to 2018 levels, and achieving by no later than 2050 the transition to a climate resilient, biodiversity-rich, environmentally sustainable, and climate-neutral economy. The strengthened climate governance framework set out in the 2021 Act includes a requirement for annual updates to the Climate Action Plan, supported by a programme of carbon budgets and sectoral emissions ceilings, and the periodic updating of our Long-term Climate Strategy. The carbon budgets and sectoral emission ceilings (see Tables 3.1 and 3.2 below) provide an emissions reduction pathway towards our 2030 and 2050 climate targets.

3.2 Climate Action Plans

To support the overall achievement of our 2050 national climate objective, the 2021 Climate Act¹⁰ requires the Minister for the Environment, Climate and Communications to prepare an annual update to the Government's 2019 Climate Action Plan. The annual update must be approved by Government before being published, be consistent with Ireland's carbon budget programme, and contain sector-specific actions, for the relevant period, to ensure compliance with our carbon budgets and sectoral emission ceilings, as well as actions to address any failure, or projected failure, to comply with the budget and ceilings. The annual updates to the plan must also contain measures and actions that are reasonably necessary to support Government policy on climate change, including measures to inform and promote dialogue with the public regarding the challenges and opportunities of the transition to a climate neutral society and economy.

3.2.1 Preparation of the Climate Action Plan

The preparation and delivery of a Climate Action Plan requires strong levels of cross-Government cooperation and collaboration, detailed technical analysis across a range of sectors, and extensive stakeholder engagement.

Sector-specific Working Groups are established to support cross-Government cooperation and collaboration. The annual update to the plan is informed by the latest reports, studies, and publications, including those from the Environmental Protection Agency (EPA) and

¹⁰ <https://www.irishstatutebook.ie/eli/2021/act/32/enacted/en/print>

Climate Change Advisory Council (CCAC), as well as the quarterly Climate Action Progress Reports prepared by the Department of Taoiseach. Research, analysis, and other technical support to assist in the development of the plan is provided by a number of Agencies and research organisations, including the Sustainable Energy Authority of Ireland, the National Transport Authority, Teagasc and members of the Climate Action Modelling Group,¹¹ as well as procured external technical services.

Wider public consultation and engagement is undertaken through the National Dialogue on Climate Action (NDCA) and a Call for Expert Evidence.¹² Under the NDCA, the Department of the Environment, Climate and Communications (DECC) hosts a series of events as part of the annual Climate Conversations programme. These directly inform the preparation of the annual update to the Climate Action Plan. The Call for Expert Evidence seeks submissions and evidence-based views from expert stakeholders, academic institutions, researchers, and analysts in the climate, energy, environment, and industry sectors. Their submissions and views form a vital input into the annual preparation of the plan. In 2023, DECC also commissioned a Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) of the Climate Action Plan. The SEA and AA will inform the finalisation of Climate Action Plan 2024 (CAP24).

Overarching SEA and AA Mitigation

The Climate Action Plan (CAP) is a whole-of-Government plan with all relevant Departments and Agencies feeding into its development. Therefore, the relevant Departments and Agencies have legal obligations in relation to protection of the environment.

These Departments and Agencies' plans, programmes and projects must be consistently screened for SEA, EIA and AA processes as appropriate to ensure that protection of the environment and sustainable development are driving principles of CAP implementation.

Where the above processes have been or are being undertaken, the measures identified to mitigate, remedy and offset negative effects must be given effect along with any associated planning conditions, at the appropriate scale and level of detail.

¹¹ CAMG members include: EnvEcon, the ESRI, UCC/MaREI, UCD and University of Galway

¹² <https://www.gov.ie/en/consultation/9acec-call-for-expert-evidence-climate-action-plan-2024/>

Notwithstanding there is existing guidance related to linear infrastructure, the principle of robust constraints, site and route selection, and environmental assessment, reporting and monitoring, shall be applied to all infrastructure projects as best practice, to avoid significant negative environmental effects and to ensure the legal protection of European sites and the avoidance of adverse effects on site integrity.

3.3 Carbon Budgets and Sectoral Emissions Ceilings

3.3.1 Carbon Budgets

A carbon budget represents the total amount of emissions, measured in tonnes of CO₂ equivalent,¹³ that may be emitted by a country or region during a specific time-period. The 2021 Climate Act mandated the CCAC to propose carbon budgets for each of the periods 2021-2025; 2026-2030; and 2031-2035 (provisional). As already noted, the EPA’s latest projections of GHG emissions for the period 2022-2040 indicate that Ireland will exceed the first two carbon budgets by a margin of 24%-34%. The CCAC has commenced work to prepare its next series of statutory recommendations for the carbon budget programme, which will comprise proposals to finalise the 2031-2035 carbon budget and introduce a new provisional budget for the period 2036-2040.

Table 3.1 – Ireland’s Carbon Budgets

Carbon Budget Period	MtCO ₂ eq.	Average Annual reduction
2021 – 2025	295	4.8%
2026 – 2030	200	8.3%
2031 – 2035 (provisional)	151	3.5%

¹³ Metric measure used to compare the emissions from various greenhouse gases on the basis of their global-warming potential (GWP), by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential.

3.3.2 Sectoral Emissions Ceilings

Sectoral emissions ceilings set out the maximum amount of GHG emissions that are permitted in different sectors of the economy during a carbon budgetary period. These are presented in Table 3.2.

3.3.3 Unallocated Emissions Savings

In the 2020 Programme for Government, it was recognised that “in setting the second carbon budget for 2026-2030, we will not yet be in a position to identify all the emerging technologies, changing scientific consensus or policies to meet our full ambition”, and that a further allocation within the overall carbon budget would be required. Section 4(3)(b) of the 2021 Climate Act provides that the roadmap of actions contained in a Climate Action Plan can set out an overview of the policies and, to the extent feasible, measures, that, in the Minister’s opinion, will be required for the second budget period in a carbon budget programme. Section 6C(10) of the Act requires the Minister and Government, when preparing the ceilings, to “have regard for the fact that the means of achieving a climate neutral economy and other measures to enable the State to pursue the national climate objective may not yet be fully identified and may evolve over time through innovation, evolving scientific consensus and emerging technologies”.

The sectoral emissions ceilings approved by Government in July 2022 assume 5.25 MtCO₂eq. in annual unallocated savings for the second carbon budget period (2026-2030). These unallocated savings require that additional abatement measures be identified ahead of the commencement of the second carbon budgetary period.

Climate Action Plan 2023 (CAP23) presented some potential options to close the unallocated savings gap, including increasing the ambition of existing measures; implementing targeted demand management measures; and relying more on emerging technologies. CAP24 also sets out an approach to deal with unallocated savings no later than 2025. The proposed approach is focused on exploring emerging technologies where there is now greater evidence of technical/commercial readiness, and on the deployment of carbon removal technologies (see chapter 5).

3.3.4 Land Use, Land-use Change and Forestry

In 2022, adopting a sectoral emissions ceiling for the Land Use, Land-use Change and Forestry (LULUCF) sector was deferred pending a review of options following changes to the sector's baseline in the EPA's 2022 National Inventory Report (NIR).¹⁴ In fact, 2018 emissions for LULUCF have fluctuated in the past three NIRs, ultimately increasing by 31% since NIR 2021. This is primarily driven by changes in the emission factor for drained afforested organic soils. Numerous further inventory refinements are planned for the coming years. Reflecting this high level of uncertainty with LULUCF emissions; the series of planned inventory refinements; and the continued volatility for LULUCF baseline emissions to 2030 and beyond, CAP24 puts in place ambitious activity targets for the sector that will be kept under review in the light of emerging evidence from the inventory refinements and Phase 2 of the Land-use Review (see chapter 17).

¹⁴ Ireland's national inventory submissions 2022 (including the NIR Report) available at: <https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/irelands-national-inventory-submissions-2022.php>

Table 3.2 – Sectoral Emission Ceilings

(Figures for MtCO₂eq. for 2018, 2025 and 2030 have been rounded. This may lead to some discrepancies)

	2018 Baseline (MtCO ₂ eq.) ¹⁵	Sectoral Emission Ceilings for each 5-year carbon budget period (MtCO ₂ eq.)	
Sector	2018	2021-2025*	2026-2030*
Electricity	10	40	20
Transport	12	54	37
Built Environment - Residential	7	29	23
Built Environment - Commercial	2	7	5
Industry	7	30	24
Agriculture	23	106	96
Other (F-Gases, Waste & Petroleum refining)	2	9	8
LULUCF	5	Reflecting the continued volatility for LULUCF baseline emissions to 2030 and beyond, CAP24 puts in place ambitious activity targets for the sector reflecting an EU-type approach (see chapter 17)	
TOTAL	68		
Annual unallocated Emission Savings in 2030	-	-	5.25 ¹⁶
Unallocated Savings 2026-2030 ¹⁷			26

¹⁵ Million tonnes of carbon dioxide equivalent

¹⁶ Unallocated savings on an economy-wide basis in 2030 (final year of second carbon budget period), before factoring in net LULUCF sector emissions

¹⁷ Unallocated savings on an economy-wide basis in the second 5-year carbon budget period from 2026-2030, before factoring in net LULUCF sector emissions

4. Research and Innovation

Key Messages

State of Play

- Research and innovation provide the knowledge, expertise, data, evidence, technologies and solutions to enable the transition to a competitive, low-carbon, climate-resilient, and environmentally sustainable society and economy
- Ireland continues to develop its climate research and innovation ecosystem and to build strong relationships with the European and global research and innovation community

Current and Future Action

- Many research and innovation actions set out in Climate Action Plan 2023 have been successfully completed and others are ongoing
- Strategic themes and priorities have been identified and an agreed framework to guide climate and climate-related strategic research and innovation will be developed

Expected Outcomes

- Climate policy, action and implementation will be strengthened
- An increased focus on knowledge transfer and the provision of timely evidence to inform policy will strengthen policy and implementation
- New knowledge, expertise, data, evidence, technologies and solutions will continue to support climate action

4.1 Introduction

Research has been central in developing an understanding of climate change and its consequences and will be crucial in informing further effective climate action. New, and as yet unknown, technologies and solutions will be required as we transition to climate neutrality by transforming our electricity, heating and cooling, transport, material and food systems; ensure the sustainable use of land and oceans; support households, farms and industry to decarbonise; and create a circular and bio-based economy. This transformation is as much an economic and societal challenge as a scientific or technical one and must also address the other two interlinked elements of the triple planetary crisis – biodiversity loss and pollution.

Research and innovation (R&I) defined here respectively as the *creation of new knowledge* and as *putting research to use*, are fundamental to implementing existing and devising new

solutions, and to developing the policies, behavioural interventions, and technologies required to mitigate the effects of climate change and adapt to its consequences.

4.2 Current State of Play

This chapter builds on the actions in Climate Action Plan 2023 (CAP23) to ensure that R&I informs climate action now and in the future. Many R&I actions set out in CAP23 have been successfully completed¹⁸. In 2023 Science Foundation Ireland (SFI) launched the final funding calls¹⁹ under the National Challenge Fund. The Department of the Environment, Climate and Communications (DECC) has supported participation by Dublin and Cork cities in the Horizon Europe Climate-Neutral and Smart Cities Mission and seven Local Authorities have signed the Climate Adaptation Mission Charter²⁰. The Environmental Protection Agency (EPA) is coordinating Irish participation in the Integrated Carbon Observation System Research Infrastructure Consortium (ICOS-RI), which Ireland recently joined. Research Classification Ireland was published and will help to classify public investment in R&I²¹, facilitating improved insights, evidence and transparency in relation to publicly funded climate research.

The chapter also refines the themes of strategic importance included in CAP23, organising them under the broad headings of research and innovation inputs, activities, and impacts, and proposes actions to address them.

4.2.1 Ireland's Climate Research Ecosystem

Ireland has built a strong R&I system in recent years. *Impact 2030, Ireland's Research and Innovation Strategy* seeks to advance that system's strategic development and to maximise the impact of R&I on our economy and society. It focusses on key societal challenges including climate, environment, and sustainability. The R&I system also benefits from competitive European R&I programmes, including Horizon Europe, the LIFE Programme²² and Innovation Fund.

¹⁸ Several actions identified in CAP23 are ongoing activities which take place on an annual basis. As these have been set out in CAP23 and will continue as usual in 2024, they have not been included in the CAP24 Annex of Actions.

¹⁹ Sustainable Communities and Future Food Systems

²⁰ EU Missions operate as a portfolio of actions (research projects, policy measures and legislative initiatives) to achieve a measurable goal. There are currently 5 EU Missions. In July 2023, the European Commission proposed a sixth mission on the New European Bauhaus. See https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe_en

²¹ <https://www.gov.ie/en/policy-information/e1a41-research-classification-ireland/>

²² L'Instrument Financier pour l'Environnement

R&I is performed within the higher education, public, private and third (charities, non-governmental and community organisations) sectors and is supported by funding from public, private, and philanthropic sources. Irish higher education institutions (HEIs) play a key role in climate research delivery and there are many pathways for collaboration with research partners including small and medium-sized enterprises (SMEs), multinational corporations (MNCs), Government Departments and Agencies. These pathways include the SFI Research Centres²³, Enterprise Ireland/IDA Ireland Technology Centres and Enterprise Ireland (EI) Technology Gateways. Cross-sectoral collaborations help to develop the talent and skills needed for the jobs of the future, and provide innovative technologies, processes and insights to address key challenges. Summary details of the main Government Departments and Agencies involved in carrying out and supporting climate research and innovation can be found [here](#)²⁴.

4.3 Themes of Strategic Importance

Several themes of strategic importance for research and innovation have been identified and are set out below under three key headings: R&I Inputs, R&I Activities and R&I Impacts.

4.3.1 Research and Innovation Inputs

4.3.1.1 Expertise, Knowledge, and Evidence

The R&I system represents an important source of expertise that can provide data-driven and evidence-based approaches to help identify the appropriate actions to tackle climate change. The system is diverse and includes Government Departments and Agencies, industry, HEIs and civil society organisations. The role of the citizen in supporting climate research is crucial and could be enhanced²⁵. European initiatives such as the Strategic Energy Technology (SET) Plan and the European Research Area Policy Agenda help Government Departments and Agencies to identify emerging areas (such as green hydrogen) for climate research and innovation and, in some cases, set out a roadmap for supporting them.

The climate R&I evidence base needs to encompass all areas of research, including fundamental Earth systems sciences, human and economic systems, the arts, humanities,

²³ Research Centres include MaREI, BiOrbic, iCRAG and VistaMilk. Large-scale research initiatives include Terrain-AI, CONSUS, and NexSys

²⁴ For a more detailed description, see Climate Action Plan 2023 (<https://www.gov.ie/en/publication/7bd8c-climate-action-plan-2023/>).

²⁵ This could build on existing initiatives such the Coastwatch survey (<http://coastwatch.org/europe/>) and the EPA's radon and clean air projects (<https://www.epa.ie/take-action/in-the-community/citizen-science/clean-air-projects/>)

behavioural and social sciences. The creation of a new Research and Innovation Agency, provided for in the Research and Innovation Bill 2023, will increase the opportunities to fund the multi- and trans-disciplinary research that is needed.

4.3.1.2 Research Networks and Co-ordination

Collaboration with our international partners is essential and Ireland participates in a range of climate-relevant EU and international networks, EU Partnerships, Horizon Europe collaborative R&I initiatives and in cooperative initiatives under Joint Programming Initiative (JPI) Climate and JPI Oceans. In addition, Irish energy researchers' participation in International Energy Agency Technology Collaboration Programmes promotes alignment with international best practice and fosters collaboration to advance research, development and commercialisation of energy technologies. The National Standards Authority of Ireland's role as facilitator in the standards-making community provides valuable opportunities for the exchange of information, learning, and collaboration with international academia, research and business communities. Continuing and strengthening participation in these EU and international networks and fora is important.

Ireland is active in international organisations including Intergovernmental Panel on Climate Change, the World Meteorological Organization (WMO) and the Global Climate Observing System (GCOS) and engages with the United Nations Framework Convention on Climate Change, including in relation to the Paris Agreement. Ireland also contributes to a range of sectoral international research networks, such as the Global Research Alliance on Agricultural Greenhouse Gases. A strategic and planned approach is required to provide opportunities for Ireland to make a stronger contribution to the development of these activities including taking on leadership roles.

At national level, co-ordination groups in the area of climate and environmental research are important. The EPA has recently completed a review of the National Environmental Research Coordination Group and has commenced implementation of recommendations to enhance its operation and role in the national R&I system. The Civil Service Research Network brings together Government Departments, providing a locus to drive targeted research and innovation missions on key cross-governmental national challenges.

4.3.1.3 Research and Innovation Infrastructures

Research infrastructures are important in ensuring that Ireland can collect, generate, store, and manage the data required to understand the causes and monitor the impacts of climate change and the measures we take to address it. Research infrastructures (including national

databases and open access data products) are developed and supported by several Government Departments and Agencies, including DECC, the Department of Agriculture, Food and the Marine (DAFM), Geological Survey Ireland (GSI), the EPA, the Sustainable Energy Authority of Ireland (SEAI), the Marine Institute, Met Éireann, the Irish Centre for High-End Computing, Teagasc, the National Parks and Wildlife Service, SFI and EI/IDA Ireland Technology Centres. SEAI supports several research demonstration test-sites in offshore/ocean energy and maintains several important energy research databases. DAFM has supported the establishment of the National Agricultural Soil Carbon Observatory to provide accurate, long-term information on the carbon dynamics of Irish agricultural systems.

The European Commission has supported the development of pan-European Research Infrastructures for decades via its Framework Programmes for Research and Technological Development and the European Strategy Forum on Research Infrastructures. In 2022, Ireland joined the ICOS-RI which provides standardised greenhouse gas (GHG) measurements across Europe. Ireland is also a contributor to the European Plate Observing System Research Infrastructure Consortium, with GSI contributing solid Earth data and observations.

4.3.2 Research and Innovation Activities

4.3.2.1 Climate Science

Climate sciences are fundamental to understanding global, regional, and local climates, how they change over time, and the drivers of these changes both natural and anthropogenic. This research underpins our understanding of climate and how our climate is changing. It supports the development of detailed models of the climate system, that enable us to make predictions about the future and examine mitigation and adaptation options.

Ireland supports an extensive range of climate-related systematic observations and hosts a range of advanced observation sites which are part of regional and global networks. National observations are coordinated by the GCOS national committee²⁶. The University of Galway atmospheric research station Mace Head (County Galway) hosts a range of atmospheric measurements including measurements of the main GHGs and aerosols which contribute to the WMO Global Atmospheric Watch programme. Resulting data are used to verify and validate national, regional and global models and to reduce scientific uncertainties. A suite of industrial gases, including ozone-depleting substances and replacement gases which are

²⁶ The GCOS National Committee for Ireland (GCOS-Ireland) was established in 2018 following a joint initiative by Met Éireann, EPA and Marine Institute, to co-ordinate and promote GCOS observing principles in relation to the monitoring of essential climate variables, thus supporting the ever-increasing demand for localised climate information.

also GHGs, are measured there under the Advanced Global Atmospheric Gases Experiment. Observations are being continually developed by building on existing observation systems, through investment in new systems and through digitalisation, including the integration of artificial intelligence (AI) into Earth and climate observation systems. Met Éireann leads the TRANSLATE project, which is reviewing existing climate models to produce a national set of standardised climate projections which will form the basis for the development of climate services to aid climate risk decision making across multiple sectors including transport, energy, water and construction.

4.3.2.2 Systems Research and Modelling

Systems research provides insights by explicitly considering the influence of different aspects of a system on outcomes. Effective systems research can bring different specialisms and stakeholders together in a search for solutions to real-world problems such as climate change. For example, Inland Fisheries Ireland is working with partners to develop modelling to protect and restore freshwater ecosystems by increasing resilience to extreme weather events and enabling strategic prioritisation of conservation and protection measures.

Sectoral modelling has played a key role in developing climate mitigation actions to date, allowing us to assess the feasibility and impacts of proposed actions and to determine necessary investment costs. More integrated modelling capable of assessing and comparing the implications of large-scale simultaneous change across sectors is now needed alongside enhanced climate modelling in certain areas (e.g., the marine and land-use). Modelling must also be downscaled to allow for regional climate change solutions. Foresight (alternate future scenario) modelling will also be essential to identify potential opportunities associated with the transformative change needed to achieve climate neutrality. Applied across sectors, this can help to identify complementarities, competing interests and trade-offs across the diversity of prospective technological, organisational and behavioural solutions.

Modelling is also needed to investigate the combined macroeconomic impacts of different policies across households and production sectors. A whole-of-Government approach is being taken to develop a modelling framework that can analyse the macroeconomic, fiscal, and distributional impacts of the climate transition. The Department of Public Expenditure, NDP Delivery and Reform (DPENDR) and the Department of Finance are funding and supporting climate macroeconomic modelling work in the Economic and Social Research Institute (ESRI). This work, to advance our macroeconomic, fiscal, and distributional analysis of climate change using the Institute's I3E (Ireland, Environment, Energy and Economy)

model is in concert with the wider climate research programme being led by DECC and progressed through the Climate Research and Modelling Group chaired by the Department of the Taoiseach.

4.3.2.3 Social and Behavioural Research

Social and behavioural research provides insights into human attitudes, perceptions and behaviours, helping shape effective climate policies and interventions. It supports effective actions by identifying societal needs and gaps that technological and policy solutions can fill, identifying and addressing barriers to uptake, and thereby amplifying their impact. DECC has established an Advisory Group on Social and Behavioural Sciences, comprising behavioural and social science experts from higher education, State research bodies, Government Departments and Agencies. The Group provides expert insights, primarily to support the National Dialogue on Climate Action, building on research in this area, including as conducted by the EPA and the ESRI.²⁷

4.3.2.4 Climate Finance Research

Further research on climate finance and related areas such as innovative business models is needed to support the development of the financial mechanisms needed to enable the transition to climate neutrality.

4.3.3 Research and Innovation Impacts

4.3.3.1 Technological Innovation

Addressing the climate challenge requires the deployment of existing innovative technologies and solutions at scale, and the development and deployment of new technologies and solutions. Innovation is required, for example, in the ongoing development and deployment of heat pump technology; in floating offshore wind and other ocean technologies; in renewable hydrogen production; in energy storage; in sustainable farming systems; and in the bioeconomy. We need to further develop prototype technologies, taking them from the early research and development stage through to demonstration, scale-up and widespread uptake. SFI Centres, Technology Centres and Technology Gateways play a critical role in bringing research to the market by leveraging the combination of the higher

²⁷ See ESRI report 'Public understanding of climate change and support for mitigation' at <https://www.esri.ie/publications/public-understanding-of-climate-change-and-support-for-mitigation> and the EPA's 'Climate Change in the Irish Mind' at <https://www.epa.ie/publications/monitoring--assessment/climate-change/climate-change-in-the-irish-mind.php>.

education and private sector knowledge bases. For example, SFI's Research Centre – Marine Research and Innovation (MaREI) is working with Éire Composites to develop a material that is wind resistant and durable and can be used for wind energy devices. Several EI programmes (e.g., Commercialisation Fund, KT Boost) provide essential support for higher education institutions to commercialise their research outputs and create innovative start-up companies. The Disruptive Technologies Innovation Fund supports enterprise to leverage disruptive technology-based solutions, and in its sixth call encouraged projects on digital transformation and those integrating decarbonisation and net-zero commitments.

The transition to a climate-neutral and circular economy represents a clear market opportunity for our enterprises. As the international research community is advancing many crucial areas in this space, the opportunity arises for Ireland to develop technological innovation in priority areas where there are national strategic advantages and to pursue these in a strategic fashion. There are many European funding opportunities to support this including Horizon Europe, L'Instrument Financier pour l'Environnement (LIFE) and the Innovation Fund. IDA Ireland and Skillnet Ireland are working together to accelerate partnerships between MNCs and Irish SMEs in digital, disruptive, and sustainable technology solutions, building on the existing IDA Ireland Disruptive Technologies Partnering Portal and Skillnet Ireland's platform *The Innovation Exchange*.

4.3.3.2 Innovation in Policy Design, Implementation and Monitoring

The design of policy, informed by evidence, is critical to ensure that it is effective and achieves its intended purpose and outcomes. While research has played an important role in informing climate policy to date,²⁸ this is an area which requires ongoing focus and development, including the need for research and innovation in climate communications (see Chapter 9 – Citizen Engagement). These efforts are supported by the Government's commitment to improve the role of evidence for policy outlined in the *Civil Service Renewal 2030 Strategy*.²⁹ *Impact 2030* sets a clear goal to strengthen connections between Government Departments and the public research system and the evidence for policy function in the Department of Further and Higher Education, Research, Innovation and Science (DFHERIS) is currently building connections between researchers and policy makers across Government. The Civil Service Research Network is working on structures and supports to facilitate engagement and knowledge mobilisation between researchers in

²⁸ Notably, this includes work by the SFI MaREI Research Centre, whose research has informed the development of national climate policy for a decade and continues to inform annual Climate Action Plans.

²⁹ The 2023 OECD Report for the Irish Government *Strengthening Policy Development in the Public Sector* sets out a series of actions to develop a stronger research and evidence focus for public policy.

the higher education sector and the civil service. DFHERIS is also working to establish new Government science advice structures, including the appointment of a Government Science Advisor and the establishment of a National Science Advice Forum.

Monitoring and evaluation of policies in the post-implementation stage is critical to measuring progress. Methodologies derived from both physical and social science perspectives should be developed to assess and monitor the effectiveness of policy implementation. Such assessments are needed to ensure that policy aligns with the Just Transition framework and to allow policy to be refined, as required, in the light of experience.

4.3.3.3 Research and Innovation Talent and Skills

People are at the heart of research and innovation, and drive progress forward. To address the climate challenge, Ireland will need to develop and retain 'home-grown' talent and attract research and entrepreneurial talent from abroad. This includes masters and PhD researchers, postdoctoral researchers, and early-career, established and leading researchers. *Impact 2030* has set out a goal to nurture, develop and retain talent in the higher education and public research system, in enterprises, communities and public services, and this is being progressed by DFHERIS.

Providing climate researchers working in all sectors with the right opportunities, skills, life-long learning, and career support to enable them to realise their potential is also essential. This includes opportunities to carry out research which is focused on technological or policy innovation (applied research), and where appropriate, within, or in collaboration with industry, Government or societal partners. There are several programmes which support this, such as SEAI Fellowships, the Irish Research Council's Enterprise Partnership Scheme³⁰ and the SFI Industry RD&I and Public Service Fellowships.³¹ There may be a need to increase the capacity of these programmes to support climate R&I.

4.3.3.4 Supporting Delivery at Local Level and Ensuring a Just Transition

While climate action is often expressed in terms of national targets, delivery must happen at regional or local level. The need to effectively downscale these targets and deliver them poses a range of organisational, behavioural, and regulatory challenges. Currently, a lack of regional and local data on emissions is a barrier to regional and local delivery. The role of

³⁰ The Enterprise Partnership Scheme offers postgraduate scholarships and postdoctoral fellowships, co-funded by industry, Government bodies, cultural organisations and civil society organisations.

³¹ The 2023 Call for SFI Public Service Fellowships gives researchers at all career stage the opportunity to work on R&I challenges with Government Departments and Agencies, with a significant number of fellowships offered in climate R&I.

Local Authorities, and Climate Action Regional Offices in supporting them, in leading climate action at local level, needs to continue to be developed in the future.³²

Levels of innovation performance in enterprise will be increased across our regions and opportunities for innovation diffusion will be maximised through smart specialisation, guided by the *National Smart Specialisation Strategy for Innovation 2022-2027 (S3)* which embraces a regional approach to addressing Ireland's RD&I challenges. S3 has identified regional economic and research strengths and emerging areas of opportunity with ICT, pharmaceuticals, agri-food and the growing renewable energy sector identified as strengths right across the country.

4.4 A Strategic Approach to Climate Research and Innovation

While action is required across all the themes identified under the three broad R&I headings above, several strategic priorities have emerged, including the following:

- Accelerating the development, demonstration, scaling-up and uptake of innovative climate solutions (including nature-based solutions) in all sectors;
- Addressing critical research, innovation and expertise gaps including, for example, in relation to solutions to address projected shortfalls in required emissions reductions,³³ in systems research and integrated modelling, in climate adaptation, and in relation to the interlinked challenges of climate change, biodiversity loss and pollution;
- Building integrated national approaches to climate-related data collection and management (including the required research infrastructures), to ensure current and future data requirements can be met;
- Systematically reviewing, synthesising and effectively utilising evidence from climate research and innovation taking place across Europe and internationally;
- Strengthening research and innovation to underpin integrated climate mitigation and adaptation strategies for urban areas, including in relation to planning and the built environment;
- Strengthening the strategic focus of Ireland's international engagement and collaboration in climate-related research and innovation.

High-level leadership is needed to deliver current and future climate R&I priorities across Government and to ensure that Departments and Agencies work together effectively. DECC will work with key stakeholders with a view to developing an agreed framework to guide

³² For further details, please see the Chapter on Local Government

³³ *Ireland's Greenhouse Gas Emissions Projections 2022-2024* states that Ireland is not on track to meet the 51 per cent emissions reduction target by 2030 compared to 2018. See <https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/irelands-greenhouse-gas-emissions-projections-2022-2040.php>

climate and climate-related strategic research and innovation addressing the matters set out below, and ensuring that Ireland is positioned to deliver on strategic national priorities in this area:

- 1 Providing leadership and governance by identifying key roles and responsibilities, and enabling enhanced cross-sectoral and cross-Departmental co-operation and co-ordination;
- 2 Ensuring mechanisms are in place to identify strategic priorities and gaps in R&I;
- 3 Sustaining, developing and enhancing the capability of the climate and related R&I ecosystem;
- 4 Ensuring the mechanisms are in place to deliver and manage investment to optimise cross-sectoral strategic outcomes and maximise efficient and effective implementation;
- 5 Establishing foresight and horizon scanning mechanisms to look to the future in a structured and systematic way, building on the work of DPENDR and the Organisation for Economic Co-operation and Development³⁴
- 6 Developing capacity for knowledge co-creation, management, synthesis and transfer, building on the Government’s commitment and ongoing work in relation to evidence-to-policy and science advice structures.

4.5 Actions

The actions in Table 4.1 below will be undertaken in support of Government policy on climate change. Where these actions are high-impact actions new to 2024, they are also included in the 2024 Annex of Actions. The 2024 actions that are within the Annex will be reported on quarterly by the Department of the Taoiseach.

Table 4.1 – Actions

Action Number	Action
RE/24/1	Develop an agreed framework to guide climate and climate-related strategic research and innovation
RE/24/2	Establish a new Climate Science and Policy Analysis Unit within the EPA’s Climate Change Programme

³⁴ <https://oecd-opsi.org/publications/foresight-ireland/>

RE/24/3	Publish 2030+ Roadmap to determine pathways to deploy offshore/ ocean energy technology
RE/24/4	Establish new collaborative Research Centres to work across Ireland on subjects of national importance including Energy, Climate Action and Sustainability
RE/24/5	Progress the development of a proposal for an offshore renewable energy innovation park
RE/24/6	Increase investment in research to support agricultural and land use diversification
RE/24/7	Provide mechanisms to pilot sustainable energy demonstrators
RE/24/8	Ireland to lead JPI Oceans European Joint Action to establish a knowledge hub on Blue Carbon policy- related research
RE/24/9	Develop and publish spatio-temporal water maps to identify waterways at risk and indicators of climate change
RE/24/10	Establish an EPA Climate Research Fellowship Programme
RE/24/11	Establish Climate Research and Innovation Missions to focus on specific challenges that require coordinated action by multiple stakeholders and to scale promising innovations for wider applicability

5. Choosing the Pathways

Key Messages

State of Play

Through the Climate Act and Climate Action Plans 2021 and 2023, Ireland has:

- Set economy-wide Carbon Budgets for the 2021-25 and 2026-30 periods respectively
- Established sectoral emissions ceilings, with 26 MtCO₂eq. of unallocated emissions savings in the second carbon budgetary period
- Specified the measures and actions needed to meet sectoral emissions ceilings
- Defined the governance and delivery approach

Current and Future Action

Climate Action Plan 2024 (CAP24) builds on the previous plans and is focused on:

- Underpinning delivery of the established pathways by conducting a stock-take of progress to date, in order to identify gaps and potential corrective actions
- Identifying measures to address unallocated emissions savings (see section 5.6)
- Identifying an approach to achieving emissions reductions and to reporting in the Land Use, Land Use Change and Forestry (LULUCF) sector

Expected Outcomes

CAP24 aims to:

- Ensure that all sectors achieve their respective sectoral emissions ceilings, by identifying any corrective actions needed to ensure the delivery of existing measures and actions
- Establish an approach for achieving emissions reductions in the LULUCF sector (see chapter 17)
- Chart a pathway for allocating the 26 MtCO₂eq. of emissions savings that are currently unallocated in the second carbon budgetary period (2026-2030)

5.1 Introduction

Following the approval of the carbon budget programme, the Minister for the Environment, Climate and Communications engaged with relevant Ministers, Departments and Agencies to determine the level of effort required by each sector of the economy to deliver these budgets. The resultant sectoral emissions ceilings were approved by Government on 28 July 2022. Chapter 3 summarises the approved carbon budgets and sectoral emissions ceilings.

5.2. Sectoral Emissions Ceilings and Pathways

Achieving the sectoral emissions ceilings will require ambitious climate action across all parts of the economy. Table 3.2 in chapter 3 illustrates the emissions reductions for each sector as required by the sectoral emissions ceilings for each carbon budget period.

Sectoral pathways to achieve the sectoral emissions ceilings were agreed, backed by specific measures and actions for each sector. Key Performance Indicators are used to track progress towards emissions targets and enable each sector to gauge the need for additional corrective actions, as required by the Climate Act.

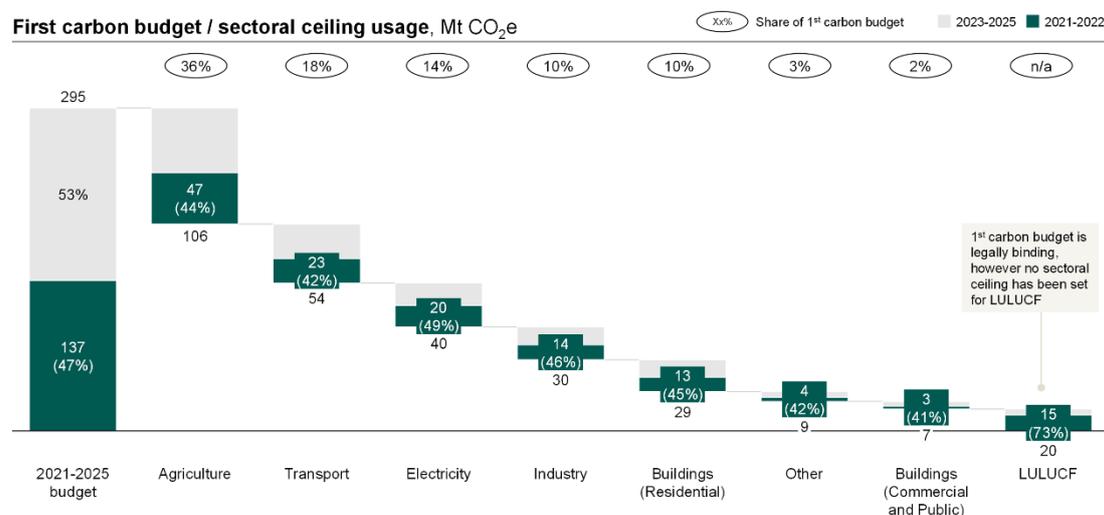
The sectoral emissions ceilings and the pathways detailed in Climate Action Plan 2023 (CAP23) were largely based on analytical work produced by the Department of the Environment, Climate and Communications. In Climate Action Plan 2024 (CAP24), this has been enhanced as many sectors have developed their own independent but complementary analytical approaches. This allows for deeper insight into the decarbonisation measures available to the sector and their associated abatement potential, ultimately building confidence in each sector's emissions reduction pathway. For example, the agriculture sector now benefits from updated modelling of emissions reduction measures in the 2023 Teagasc Marginal Abatement Cost Curve (MACC); the pathway for the electricity sector is detailed in EirGrid's *Shaping our Electricity Future*, and the National Transport Authority have modelled the measures underpinning the pathway for the transport sector. It should be noted that the abatement figures in CAP24 may not precisely bridge from 2018 emissions to the 2030 target because some abatement is needed to address assumed growth in underlying economic activity (e.g., in electricity, some abatement measures are needed to address growth in electricity demand).

5.3. Emissions Trajectory and Projections

While Ireland's greenhouse gas (GHG) emissions have been decreasing (see chapter 2), the latest Environmental Protection Agency (EPA) emissions report³⁵ (using provisional National Emissions Inventory data) estimates that 47% of the 295 MtCO₂eq. carbon budget for the five-year period 2021-2025 were already consumed by the end of 2022 (see Figure 5.1). This leaves 53% of the budget available for 2023-2025, requiring a 12.4% reduction in emissions each year to stay within budget.

³⁵ EPA. Ireland's Provisional Greenhouse Gas Emissions 1990-2022

Figure 5.1 – Share of First Carbon Budget and Emissions Ceilings Usage



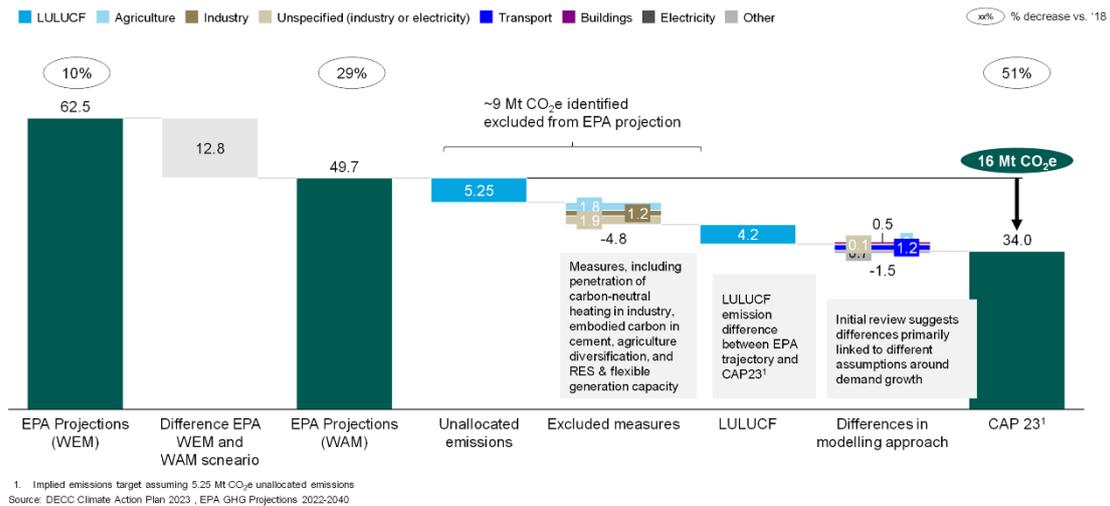
Source: Climate Action Plan 2023, EPA

As part of the annual review process (see Chapter 6), a stock-take of existing measures was conducted in order to identify those not on track and to develop corrective actions. Based on the measures currently implemented and actions committed to by Government (modelled in the EPA’s With Existing Measures scenario), 2030 emissions are projected be 11% lower than 2018 levels. This is 29 MtCO₂eq. short of the CAP23 target for 2030. The With Additional Measures (WAM) scenario models further emissions reductions based on most of the measures outlined in CAP23. Under the WAM scenario, emissions are 29% lower in 2030 than in 2018, which still falls short of the CAP23 target by roughly 16 MtCO₂eq.

The difference between the EPA’s WAM scenario and CAP23 projections is driven by a number of factors including that: some of the CAP23 emissions savings in second budget period have not been allocated; measures in the electricity, industry and agriculture sectors were excluded where the EPA was unable to model a pathway; and the EPA’s WAM scenario makes several differences on assumptions, primarily around demand growth. These factors and their impacts are outlined in Figure 5.2 below.

Figure 5.2 – Differences between Ireland’s Emissions Projections to 2030

Total 2030 GHG Emissions (incl. LULUCF), Mt CO₂e



The relevant sectoral chapters explain how the drivers of the divergences are being addressed. In summary, they addressed in the following ways:

- Unallocated Emissions Savings:** CAP24 charts a path to allocate emissions savings that are currently unallocated (see section 5.6). The sectoral emissions ceilings agreed by Government set a total of 26 MtCO₂eq. in annual unallocated savings for the second carbon budget period (2026-2030). In section 5.6, an indicative high-level allocation of these savings is provided, along with steps that Government can take to allocate savings in each sector of the economy;
- Excluded Measures:** CAP24 aims to provide corrective actions and further detail on emissions reduction measures, which can support the EPA in modelling measures that are currently excluded from their pathways. For example, in industry, a reduction in the embodied carbon of construction materials was excluded from EPA WAM modelling. CAP24 can support the inclusion of this measure in the next round of WAM modelling, as it provides updated abatement figures for the measure and the Sustainable Energy Authority of Ireland (SEAI) is set to lead several actions that will improve the transparency of accounting for embodied carbon. Similarly, the release of the Teagasc MACC (2023) in agriculture may help the EPA include more agricultural measures, since its modelling is developed in collaboration with Teagasc. Engagement with the EPA is underway, with the aim of incorporating these measures into future modelling based on updated information and potential future corrective actions;
- LULUCF:** CAP24 updates the Government’s approach to emissions and reductions in the LULUCF sector (see chapter 17). A range of activity targets for the LULUCF sector is provided, with two activity scenarios marking the higher and lower ends of emissions

reduction ambition in the sector.³⁶ Engagement with the EPA is underway regarding the modelling of these scenarios. The sector is to follow a reporting approach aligned with the EU regulations for LULUCF that Ireland has committed to, which provides clear and stable emissions targets;

- **Differences in Modelling Approach:** In cases where modelling differences exist, the approach is to ensure continued engagement between the relevant responsible Department and the EPA.

5.4 Underpinning Delivery

As specified by the Climate Act, corrective actions may be required for sectors found to be not in compliance with their sectoral emissions ceilings. Corrective actions represent new policies and programmes that underpin the delivery of measures. They are enabling actions that facilitate the achievement of Climate Action Plan measures and their associated abatement potential, and do not represent entirely new measures with their own associated abatement. Corrective actions are detailed in each sectoral chapter, and some examples are highlighted below:

- **Electricity:** Corrective actions to accelerate renewable electricity generation and grid flexibility, and manage electricity demand growth, were implemented in 2023. The Offshore Wind Delivery Taskforce is developing a system-wide plan for delivery of Offshore Wind in Ireland, and an Implementation Plan for Future Arrangements for System Services Consultation Paper, and an Interconnection Policy were published. ESB Networks published their platform roadmap for the provision of tools and supports for community participation in flexibility measures that works towards managing electricity demand growth;
- **Industry:** In the industry sector, several strategic initiatives on decarbonisation were taken in 2023. A Green Hydrogen Strategy was introduced and a draft Green Public Procurement Strategy and Action Plan was published for public consultation. Additionally, an ongoing study looks at shaping policy for the procurement of low carbon cement materials (completion anticipated shortly). To address decarbonisation of cement and construction, the Department of Enterprise, Trade and Employment successfully engaged expert services to advance the CAP23 action EN/23/12/a;
- **Built Environment:** Significant efforts were made to advance the decarbonisation of the building sector. The Heat and Built Environment Delivery Taskforce focuses on acceleration of system-wide programme and project delivery for the measures identified.

³⁶ As outlined in Chapter 18, the range is set such that all activity levels allow the sector to comply with the estimated EU targets for the LULUCF sector that Ireland has committed to.

The Energy Efficiency Directive takes the principle of "energy efficiency first" as a key policy requirement for buildings. The impending publication of a *National Heat Policy Statement*, informed by the *National Heat Study*, will outline the comprehensive approach to decarbonising the heat sector by the end of 2023. The District Heating Steering Group issued recommendations to enhance district heating. Lastly, the *Policy Statement on Geothermal Energy for a Circular Economy* further contributed to sustainable building initiatives;

- **Transport:** Numerous new national policies, plans and strategies support emissions reductions in the transport sector. These include the *National EV Charging Infrastructure Strategy*; a revised *Greater Dublin Area Transport Strategy*; the *Renewable Fuels for Transport Policy Statement 2023-2025*; and the implementation and roll-out of the first projects under the *Sustainable Mobility Policy Pathfinder Programme* (including the first all-electric town bus service). Additionally, emissions reduction will be underpinned by the adoption of key EU regulations, such as the Alternative Fuels Infrastructure Regulation as well as the ReFuelEU Aviation and FuelEU Maritime regulations;
- **Agriculture:** The agricultural sector has improved its analytical foundation for emissions reductions through the 2023 Teagasc MACC, which assesses the abatement potential of levers identified in CAP23, as well as some additional levers, and is set to be integrated into future Climate Action Plans following relevant stakeholder engagement processes. Additionally, the *Fifth Nitrates Action Programme 2022-2025* helps reduce nitrate pollution of Ireland's soils and water while reducing the emissions of nitrous oxide, a potent GHG.

5.5 Implied Capital Requirements to Deliver Emissions Ceilings and Pathways

Chapter 5 of CAP23 estimated that an additional ~€119 billion of capital investment would be required to deliver the measures identified. Of this, it was estimated that approximately ~€70 billion of capital investments (~60% of the total) would be redirected rather than incremental investments. Capital investment costs were evaluated based on a least cost pathway model that optimises total system cost.

Since the finalisation of CAP23, there has been some evidence of a potential increase in capital investment required (most significantly related to the CapEx required for renewable electricity generation capacity). The cost estimate is now ~€119-125 billion of capital investment needed.

Figure 5.3 – Estimated Investment Required to Mobilise Key Technologies

Key technologies by sectors		Investment, EUR bn
 Electricity	Wind & solar	23 7
	TSO/DSO upgrades ¹	9-13
	Backup capacity	1
 Transport	EV passenger cars	34
	EV trucks/vans	7
	EV buses	1
	EV charging infrastructure	1
 Buildings residential	Insulation in homes (retrofitted)	11
	Heat pumps in homes	9
	District heating in homes	3
 Buildings commercial	Insulation in commercial buildings	2
	DH and HP in commercial buildings	3
	Other ²	8
 Industry	Electrified heat supply in alumina	2
	Heat pumps and electric boilers	<1
 Agriculture	Electrification	<1
	Reforestation	<1
	Anaerobic digesters	1
Total		~119-125

In addition, further investments will be required to deliver the unallocated emissions savings outlined in section 5.6. Investments will likely be concentrated in the deployment of key emerging technologies. Estimates of the exact investment required are to be brought forward in advance of addressing the unallocated emissions ahead of the second carbon budgetary period.

5.6 Measures to Address Unallocated Savings

In the 2020 Programme for Government, it was recognised that “in setting the second carbon budget for 2026-2030, we will not yet be in a position to identify all the emerging technologies, changing scientific consensus or policies to meet our full ambition.”

The sectoral emissions ceilings, agreed by the Government in July 2022, include 26 MtCO₂eq. of unallocated savings in the second carbon budget period from 2026 to 2030 (5.25 MtCO₂eq. in 2030). These unallocated savings need to be addressed as soon as possible in advance of the second carbon budgetary period.

Potential measures to address unallocated savings were built using multiple approaches:

- **Evidence of improved technology readiness and/or commercial deployment:** For example, the International Energy Agency (IEA) through its *Clean Energy Technology Guide*, and the UK Climate Change Committee (CCC), indicate potential for technologies not included in CAP24 such as Carbon Capture, Utilisation and Storage (CCUS), carbon removal technologies such as biochar, and sustainable aviation fuels. Potential

abatement techniques were also identified from the wider scientific community, such as IPCC reports and regulations such as EU's *Fit For 55*.

- **Assessments conducted on the feasibility of additional decarbonisation measures for Ireland:** These include the 2023 Teagasc MACC which presents the latest perspective on decarbonisation in agriculture and the *National Hydrogen Strategy*, which sets a vision for hydrogen production and usage in electricity and industry.

Based on these approaches, five key themes to address unallocated savings, that could deliver up to 30 MtCO₂eq. during the second carbon budget period, are identified: 1) Focus on economy-wide energy efficiency and demand management; 2) Accelerate the future energy system; 3) Implement sustainable food and agriculture; 4) Deploy carbon capture and storage technologies; and 5) Support carbon removals (including bio-economy measures).

5.6.1 Focus on economy-wide energy efficiency and demand management

Ireland aims to achieve a reduction in final energy consumption against anticipated 2030 levels, in line with the EU Energy Efficiency Directive (EED). CAP24 outlines specific 2030 energy efficiency and demand management targets spanning the buildings, industry, and transportation sectors which work towards meeting the EU EED. Examples of additional actions in energy efficiency and demand management could include:

- **Increasing retrofit and heat pump uptake beyond CAP24 plans** with focus on social and public buildings;
- **Further modal shifts**, particularly in freight towards rail, above and beyond that already factored into, and accounted for in, the transport emissions reduction pathway as outlined in Chapter 15;
- **Managing energy demand in the commercial sector**, with a potential focus on data centre power demand.

5.6.2 Accelerate the future energy system

Ireland has firmly established its commitment to the clean energy transition, evident in the substantial growth of installed renewables power capacity. The Climate Action Plans have outlined precise goals for renewable energy, focusing on solar, onshore wind, and offshore wind generation. Beyond the realm of renewables, there is potential to address unallocated

savings over the second carbon budgetary period by exploring low carbon technologies across the energy system, with this opportunity spanning four key actions:

- **Increase Climate Action Plan hydrogen ambition further** to achieve hydrogen uptake in line with the ambition outlined in the *National Hydrogen Strategy* through scaling electrolyser capacity;
- **Expanding the role of interconnector capacity** as low-carbon power supply through deeper integration of cross border electricity markets;
- **Building out low-carbon flexibility opportunities** such as long-duration energy storage;
- **Deploying sustainable biofuels, in line with EU Regulations, in hard-to-abate transport sectors**, such as domestic aviation and maritime.

5.6.3 Implement sustainable food and agriculture

The sectoral emissions ceilings and Climate Action Plans set goals and pathways to reducing emissions from agriculture by 25% by 2030 (compared to 2018). Examples of additional measures could include:

- **Incorporation of emissions reduction potential based on latest science**, e.g., Teagasc MACC 2023;
- **Implementation of latest technologies that aim to limit methane emission**, e.g., feed additives;
- **Creation of beneficial diversification opportunities for farmers**, e.g., organics, tillage.

5.6.4 Deploy carbon capture, utilisation and storage technologies

The deployment of CCUS technology is not integrated in the Climate Action Plans. In contrast, the UK anticipates 6 MtCO₂eq. 2030 annual industrial emissions reduction by 2030 through this technology. By incorporating CCUS into our strategy, we can potentially address a portion of unallocated savings in Ireland between 2026-2030 across industry, electricity and waste treatment. This technology will play a significant role in future decarbonisation of the energy sector and industry, such as in the cement sector. Feasibility and validation of the technology in an Irish context will now commence, under the leadership of the Department of the Environment, Climate and Communications (DECC), in order to develop policy and a regulatory framework that might unlock those opportunities. This could involve

retrofitting existing cement, power plants, and waste-to-energy facilities with carbon capture capabilities, as well as building out necessary transport and storage infrastructure (e.g., creating dedicated port areas for international shipment).

5.6.5 Support carbon removals (including bio-economy measures)

Ireland's Climate Action Plan does not incorporate the use of carbon removal strategies, encompassing the extraction, storage, and utilisation of biogenic carbon dioxide. Global reports, including those by the IEA and the UK CCC, along with domestic research such as SEAI's *Carbon Capture Utilisation and Storage: Suitability, Costs and Deployment Options in Ireland* and Coillte's strategic vision, underscore the considerable potential of carbon removals in Ireland. Notably, within the second carbon budget, two distinct carbon removal methods emerge as potentially promising avenues capable of addressing part of the gap in residual unallocated emissions:

- **Biochar:** Utilising biogenic woody residue to produce biochar (e.g., for use as soil enhancement);
- **Bioenergy with Carbon Capture and Storage:** Removing biogenic carbon dioxide from renewable biomass power plants.

The assessment above provides a non-exhaustive view of how unallocated savings could be addressed during the second carbon budget period. This plan will ensure that policy owners are identified and will set up task forces across the options with mandate to:

- Validate and syndicate the emissions savings potential;
- Estimate costs for delivering the emissions reduction measures;
- assess of the potential impacts (e.g., economic, social, environmental); and identify key actions/ roadmap to deliver.

This work is to be completed ahead of Climate Action Plan 2025, and well in advance of the second carbon budgetary period.

Figure 5.4 below demonstrates a possible governance and delivery framework to support the allocation of currently unallocated emission savings across various thematic areas, while acknowledging that DECC will need to establish an overarching working group to look at all sectors holistically. This framework indicates that the delivery of the unallocated emissions savings themes would be led by newly created working groups comprising members of relevant Government Departments and State Agencies. Input into these working groups would be supplied from a number of sources, including various climate action task forces and working groups.

Figure 5.4 – Potential framework to support the intention to allocate the unallocated savings potential across the main themes in Climate Action Plan 2025

Themes		Timeline	Leading working group	Stakeholders
A	 Energy efficiency and demand management <ul style="list-style-type: none"> Assess feasibility and validate / syndicate emission savings potential from energy efficiency and demand management. Potential focus areas include: rail freight mode shift, increasing retrofits and heat pump installations, capping data centre demand growth , Assess the potential impacts (e.g., economic, social, environmental) Identify key actions / roadmap, resources, and policies required to deliver 	Q2 2024	Energy efficiency and demand (DECC)	Heat and Built Environment TF, Commercial Built Environment Roadmap WG, Industrial Heat Decarbonisation WG, National Sust. Mobility Policy, DHLGH
B	 Accelerate future energy system <ul style="list-style-type: none"> Assess feasibility and validate / syndicate emission savings potential from accelerating the future energy system. Potential focus areas include: raising hydrogen ambition, deploying sustainable biofuels in hard-to-abate transport sectors, interconnector capacity expansion, low-carbon flexibility build out Assess the potential impacts (e.g., economic, social, environmental) Identify key actions / roadmap, resources, and policies required to deliver 	Q2 2024	Future Energy System (DECC)	Heat and Built Environment TF, Commercial Built Environment Roadmap WG, Industrial Heat Decarbonisation WG
C	 Sustainable food and agriculture <ul style="list-style-type: none"> Assess feasibility and validate / syndicate emission savings potential from sustainable food and agriculture. Potential focus areas include: Methane emission limiting technologies, diversification options for livestock farmers, Incorporation of emissions reduction potential based on latest science Assess the potential impacts (e.g., economic, social, environmental) Identify key actions / roadmap, resources, and policies required to deliver 	Q2 2024	Sustain food & agriculture (DECC/DAFM)	Land Use Review Phase II, DAFM 5 working group
D	 Carbon capture and storage <ul style="list-style-type: none"> Assess feasibility and validate / syndicate emission savings potential from carbon capture and storage and carbon removals (incl. bioeconomy). Potential focus areas include: retrofitting specific existing industrial plants with carbon capture capabilities, increasing biochar production, and deploying bio-energy carbon capture and storage (BECCS) 	Q2 2024	Carbon capture and removals (DECC)	DECC, DETE, DPER, DFIN, SEAI, EPA, EirGrid, ESB, NPWS, industry stakeholders
E	 Carbon removals (incl. bioeconomy) <ul style="list-style-type: none"> Assess the potential impacts (e.g., economic, social, environmental) Identify key actions / roadmap, resources, and policies required to deliver 	Q2 2024		

5.7 Benefits for Ireland

Figure 5.5 – Benefits of climate action



Co-benefits

Additional social and economic benefits that arise from measures to decarbonise

- Habitat creation
- Improved air quality
- Flood risk mitigation
- Reduced water pollution
- Increased water and energy efficiency



Health benefits

Health improvements and reduced health risk linked to the Net Zero transition

- Shift to active travel
- Physical health improvement
- Mental health improvements
- Healthier diets
- Reduced mortality risks



Job creation

Sustainable economic growth and job creation opportunities arising from the low-carbon transition

- Increased demand for higher-skill roles
- New high-growth green export and export opportunities
- Additional job opportunities in key low-carbon transition sectors

- **Co-benefits:** Climate co-benefits refer to additional social and economic benefits that arise from climate action. For example, the restoration of peatlands and increase in woodland enables habitat creation and improves air quality. Increased forest cover can retain excess water and mitigate the impacts of floods, increasing resilience to climate change. Changes to farming practices bring air quality improvements from the reduction in ammonia use, and reduced eutrophication/water pollution because of more efficient nitrous oxide application. Regenerative agricultural practices improve soil health and the soil's capacity to infiltrate, reducing the need for irrigation and improving water and energy efficiency.
- **Health benefits:** There is a wealth of evidence that many climate actions can lead to health improvements and reduced health risks. For example, embracing active travel (walking and cycling) can have improved physical and mental health benefits which, considered in economic terms, are even greater than the positive environmental impact, while the shift to renewable fuel sources improves air quality. Additionally, climate action can help improve air quality, which was highlighted as a priority in the EPA's 2022 *Air Quality in Ireland* report.³⁷ Action to reduce transport emissions in particular reduces exposure to pollutants and associated mortality risks and will help Ireland achieve its ambition to move towards the World Health Organisation Air Quality guidelines, as outlined in the Clean Air Strategy.
- **Job creation:** Climate action can lead to market opportunities that enable sustainable economic growth and green job creation. For example, increased demand for jobs in higher- skilled roles such as offshore wind installation engineers. Ireland is well positioned to seize new high-growth green export and import substitution opportunities such as horticulture and harvested wood products. Further opportunities for job creation exist in low-carbon transition sectors such as buildings, transport, and manufacturing. In

³⁷ EPA (2023), Air Quality in Ireland Report 2022

the buildings sector, this could include jobs to support the energy efficiency and low-carbon heat programmes.

The actions set out in this plan aim to ensure that Ireland’s response to climate change maximises the potential benefits outlined above and ensures that the impacts are distributed fairly.

5.8 Actions

The actions in Table 5.1 below will be undertaken in support of Government policy on climate change. Where these actions are high-impact actions new to 2024, they are also included in the 2024 Annex of Actions. The 2024 actions that are within the Annex will be reported on quarterly by the Department of the Taoiseach.

Table 5.1 – Actions

Action Number	Action
PW/24/1	Establish an Energy Efficiency and Demand Management Working Group, for purpose of addressing the currently unallocated emission savings
PW/24/2	Establish a Future Energy System Working Group, for purpose of addressing the currently unallocated emission savings
PW/24/3	Establish a Sustainable Food and Agriculture Working Group, for purpose of addressing the currently unallocated emission savings
PW/24/4	Establish a Carbon Capture and Removals Working Group, for purpose of addressing the currently unallocated emission savings

6. Governance

Key Messages

State of Play

- The Climate and Action and Low Carbon Development (Amendment) Act 2021 provides legal underpinning for Ireland's climate action governance, including setting the 'national climate objective' in law and the adopting of carbon budgets and sectoral emissions ceilings
- Setting policy and monitoring progress towards meeting our climate objectives will be undertaken by Government, the Cabinet Committee on the Environment and Climate Change and the Climate Action Delivery Board
- Taskforces and similar structures have been established to facilitate delivery of challenging cross-cutting and cross-departmental climate action
- Citizens believe that Governments and political institutions are the most important actors in delivering climate action

Current and Future Action

- Improved governance features include:
- Enhanced taskforce structures in place
- Improved quarterly reporting of actions committed to in the Climate Action Plan
- High-level emissions abatement actions prioritised
- Environmental Protection Agency quarterly emissions projections reporting introduced
- Annual Key Performance Indicator monitoring and reporting commencing in 2024

Expected Outcomes

- Continued cross-organisational engagement and cooperation to deliver our climate goals
- Improved monitoring and reporting to enhance the evidence base informing policy makers
- Improved and more transparent delivery of climate action

6.1 Introduction

The carbon budget programme adopted by the Oireachtas in April 2022, and the sectoral emissions ceilings approved by the Government in July of that year, continue to underpin the

policies, measures and actions set out in this Climate Action Plan, sitting alongside and supporting our EU targets and their associated governance and reporting framework. Further information our carbon budgets and sectoral emissions ceilings is provided in chapter 3.

6.2 Review of Sectoral Emissions Ceiling Ministerial Accountability Framework

Emissions from public sector buildings are currently included under the Commercial Built Environment sectoral emissions ceiling. Public sector buildings typically account for around 45% of the emissions in this sector, and 1.1³⁸% of total national emissions. A separate sectoral emissions ceiling will be introduced for public sector buildings for the second carbon budgetary period (2026-2030), along some further revisions to the Sectoral Emissions Ceiling Ministerial Accountability Framework from 2026 to better align accountability with relevant Ministerial sectoral responsibilities. Suggested revisions are set out in Table 6.1 below.

³⁸ https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/2023-EPA-Provisional-GHG-Report_Final_v3.pdf

Table 6.1 – Proposed Revisions to the Sectoral Emissions Ceiling Ministerial Accountability Framework

Sector	Minister with Responsibility
Electricity	Minister for the Environment, Climate and Communication
Industry	Minister for Enterprise, Trade and Employment
Residential Buildings	Minister for the Environment, Climate and Communication
Commercial Buildings	Minister for Enterprise, Trade and Employment
Public Sector Buildings (including 2030 51% reduction target)	Individual Sectoral Ministers (e.g., Minister for Health hospitals; Minister for Education – schools, etc.)
Transport	Minister for Transport
Agriculture	Minister for Agriculture, Food and the Marine
LULUCF	Minister for Agriculture, Food and the Marine, coordinating with the Minister for Housing, Local Government and Heritage
Other (F-Gases, Waste & Petroleum Refining)	Minister for the Environment, Climate and Communications

Pending future decisions on these proposed revisions, the current Sectoral Emissions Ceiling Ministerial Accountability Framework remains operative.

6.3 Oversight of Government

The Environmental Protection Agency’s (EPA) annual greenhouse gas (GHG) inventory³⁹ and projections reports, and the Climate Change Advisory Council’s (CCAC) annual report,⁴⁰ inform monitoring of compliance with our carbon budget programme and sectoral emissions ceilings.

Since late 2023, the EPA are also providing quarterly emissions reports (6 months in arrears) which offer a further evidence base to track progress and inform policy. While these reports do not have the status of official inventories, they are a valuable resource for policy

³⁹ [Monitoring & Assessment: Climate Change: Air emissions Publications | Environmental Protection Agency \(epa.ie\)](#)

⁴⁰ [Annual Review and Report | Climate Change Advisory Council \(climatecouncil.ie\)](#)

makers, supplementing the annual publication the emissions inventory, and allowing for earlier identification of the impact of policies, measures, and actions.

The CCAC is an independent advisory body tasked with assessing and advising on how Ireland is making the transition to a climate-resilient, biodiversity-rich, environmentally sustainable, and climate-neutral economy. By 30 October each year, the CCAC reviews Ireland's performance over the previous year, following which relevant Ministers are required to give account to the Joint Oireachtas Committee on Environment and Climate Action in relation to implementing the Climate Action Plan and adhering to the sectoral emissions ceilings for which they are responsible. Where Ministers are not in compliance with their sectoral climate targets, they are required to outline what corrective measures are envisaged and must respond to any recommendations made by the Oireachtas Committee within 3 months. This 'comply or explain' approach is to support greater scrutiny and accountability.

The annual revision to the climate action plan provides an opportunity to adjust and/or refocus actions to ensure Government remains on course to deliver our climate targets.

Box 6.1 – Climate Change Advisory Council Annual Review 2023 – Overall Recommendations

CCAC Annual Review 2023 – Overall Recommendations

- Government must address areas of uncertainty in how Ireland will reduce its emissions. The sectoral emissions ceiling for the Land Use, Land Use Change and Forestry sector must be set, and it must be clear by how much each sector must reduce its emissions;
- Government needs to identify and remove barriers to policy implementation by ensuring adequate funding and planning reform at scale and speed.
- Key actions need to be implemented now to prevent longer term damage and increased costs to society and the economy;
- Government must adopt new approaches to address emission reductions, creating investment and enhancing skills across the economy, particularly in areas such as retrofitting and renewable energy.
- The establishment of a Just Transition Commission is recommended to ensure that Ireland achieves its climate objectives in a way that is fair and equitable and protects vulnerable people and communities.
- The Government should support opportunities that reduce emissions and make Ireland better prepared for the impacts of climate change.

The overall and sector-specific recommendations in the CCAC annual review are addressed in the relevant chapters of this Climate Action Plan, and have been incorporated into policies, measures, and actions in so far as it is possible to do so.⁴¹

6.4 Delivery of Climate Action Plans

The delivery and governance architecture for climate planning and reporting continues to be strengthened over successive plans to better reflect the scale and nature of the challenge ahead. This includes building on the existing foundation of policy development, while taking into consideration lessons learnt in previous years, and upgrading the structures, processes and public sector capacity required to deliver the plan. Key areas of change include:

- Expansion of the delivery taskforce approach, with cross-departmental and multi-disciplinary taskforces taking on responsibility for more actions;
- Further streamlining of climate measures and actions to ensure the highest impact emissions abatement measures are prioritised;
- More targeted climate reporting to better understand trends and assess interventions;
- Increased transparency and accountability, with Agency-led actions to be reported alongside Department-led actions in published quarterly progress reports on future Climate Action Plans;
- Identification risks to key deliverables by the Climate Action Delivery Board to ensure barriers to implementation are addressed.

6.4.1 Delivery Structures and Rhythm

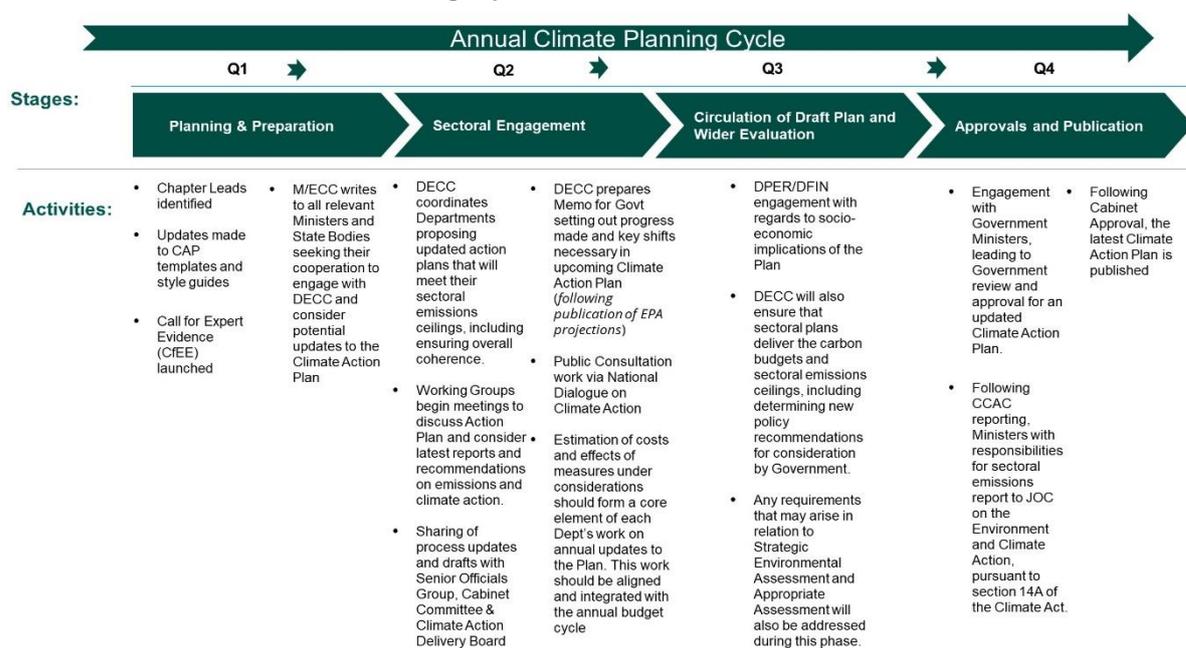
6.4.1.1 Annual Cycle for Climate Action Plan Delivery

The annual cycle for climate action planning and reporting sets out the delivery processes that inform and support the preparation and implementation of our Climate Action Plans, providing further clarity and detail regarding the important milestones and actions required to deliver on our climate commitments. It was described in Climate Action Plan 2023 (CAP23) and has been refined to align with broader Government cycles, allowing responsible

⁴¹ CCAC recommendations addressed in the following chapters: Electricity recommendations addressed in Chapter 13 Electricity; Transport recommendations addressed in Chapter 16 Transport; Enterprise and Waste recommendations addressed in Chapter 14 Industry and Chapter 20 The Circular Economy; Built Environment recommendations addressed in Chapter 15 Built Environment; Agriculture and LULUCF recommendations dealt with in Chapter 17 Agriculture and Chapter 18 LULUCF; Adapting to the Impacts of Climate Change recommendations dealt with in Chapter 23 Adaptation.

Departments time for collaboration and early review of sectoral proposals.⁴² It will be reflected in the development and delivery of future Climate Action Plans.

Figure 6.1 – Climate Action Planning Cycle



The planning cycles consists of four phases as follows:

- **First Phase (Q1) – Department of the Environment, Climate and Communications Planning and Preparation**

The Department of the Environment, Climate and Communications (DECC) commences the initial preparatory steps for the Climate Action Plan – Chapter Leads are identified; updates are made to templates and style guides; and the Call for Expert Evidence is launched. The Minister for the Environment, Climate and Communications writes to Ministerial colleagues and State Agencies seeking their cooperation and engagement for the next update to the Climate Action Plan;

- **Second Phase (Q2) – Sectoral Engagement**

In the second phase of the planning cycle, DECC coordinates among Departments proposing updated action plans that will meet their sectoral emissions ceilings, including ensuring overall coherence. Support will be available from the Climate Action Modelling

⁴² Compared to the version in CAP23, the finalised annual cycle has shifted the timeline for the proposed Memorandum for Government setting out current progress status and defining key shifts necessary in an upcoming Climate Action Plan from Q1 to Q2. This is to allow for the publication of the EPA's Emissions Projections Report so that these projections can be integrated into the consideration of key shifts required. The annual cycle also incorporates additional guidance from the Department of Public Expenditure, NDP Delivery and Reform to emphasise the requirement for Government Departments to estimate the costs and effects of measures under consideration for the Climate Action Plan and ensure that their proposed measures are aligned and integrated with the annual budget cycle.

Group. Working Groups begin meetings to discuss the next Climate Action Plan and consider the latest reports and recommendations on emissions and climate action. Estimation of the costs and effects of measures should form a core element of each Department's work, and this work should be aligned and integrated with the annual Budget cycle. Following publication of the EPA's emissions projections report, DECC prepares a Memorandum for Government setting out progress made and defining key shifts necessary in upcoming plan. Process updates and drafts are shared with the Senior Officials Group, Cabinet Committee and Climate Action Delivery Board;

- ***Third Phase (Q3) – Circulation of Draft Plan and Wider Evaluation***

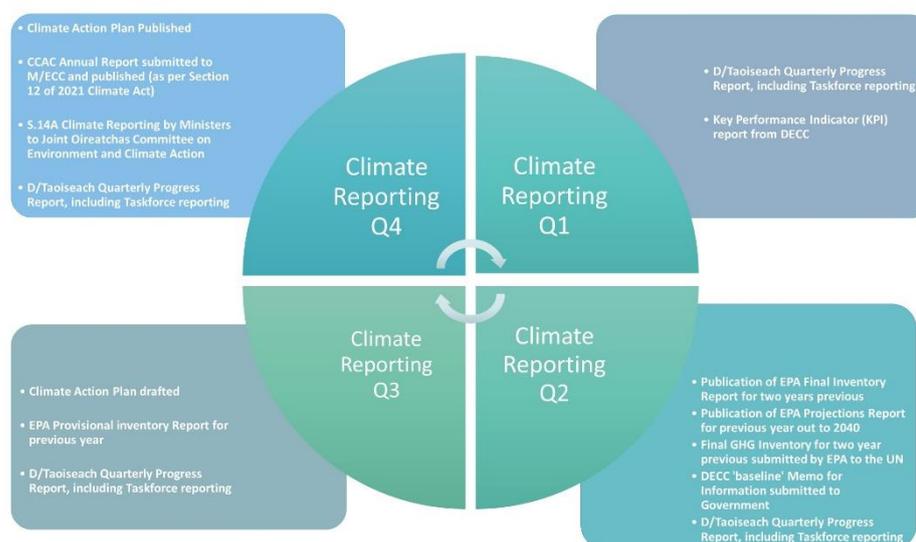
DECC circulates a draft Climate Action Plan integrating sectoral plans and identifying cross-cutting initiatives for review and input. DECC will also ensure that sectoral plans deliver the carbon budgets and sectoral emissions ceilings, including determining new policy recommendations for consideration by Government. DECC will engage with the Department of Public Expenditure, NDP Delivery and Reform (DPENDR) and the Department of Finance in relation to the wider socio-economic implications of the plan, recognising that capacity to undertake this type of analysis is currently being developed and there will be a time lag before it becomes available. Any requirements that may arise in relation to Strategic Environmental Assessment and Appropriate Assessment will also be addressed during this phase;

- ***Final Phase (Q4) – Approvals and Publication***

The final stage involves engagement with Government Ministers, leading to Government review and approval for an updated Climate Action Plan. Following Government approval, the annual Climate Action Plan is published. Following CCAC reporting, Ministers with responsibilities for sectoral emissions are invited to the Joint Oireachtas Committee on the Environment and Climate Action to discuss progress, emissions reductions, and the actions necessary to meet relevant emissions ceilings.

6.4.1.2 Annual Climate Action Reporting Cycle

Figure 6.2 – Annual Climate Reporting Cycle



The Annual Climate Action Reporting Cycle comprises the following key publications,⁴³ events, and milestones:

- **First Quarter**

The Department of An Taoiseach publishes the final Quarterly Progress Report relating to the previous year, and DECC publishes a Key Performance Indicator (KPI) Report. Both reports provide important information on climate action.

- **Second Quarter**

The EPA publishes its Final Inventory Report for the previous two years (which it also submits to the UN), and its Projections Report for the previous year out to 2040. Both reports provide baseline information for the Memorandum for Government referenced above. The Department of An Taoiseach publishes the first Quarterly Progress Report of the current year.

⁴³ Key publications from major research bodies are also taken into account during the year (e.g. Teagasc MACC publications: [Marginal Abatement Cost Curve 2023 - Teagasc | Agriculture and Food Development Authority](#)).

- ***Third Quarter***

Drafting of the Climate Action Plan is completed drafted. EPA publishes its Provisional Inventory Report for previous year, and the Department of An Taoiseach publishes the second Quarterly Progress Report of the current year.

- ***Fourth Quarter***

The Climate Action Plan is published. The CCAC's Annual Report is submitted to the Minister for the Environment, Climate and Communications, and published. Relevant sectoral Ministers report to the Joint Oireachtas Committee on Environment and Climate Action. Taoiseach publishes the third Quarterly Progress Report of the current year.

6.4.2 Climate Delivery Taskforces

The creation of delivery taskforces has been an innovative approach to embedding climate as a core part of Government business. It addresses the challenging implementation of cross-cutting actions within Climate Action Plans. These taskforces will continue to operate into 2024 and beyond. Membership is drawn from across Government Departments and Agencies, as well as from key external stakeholders. The taskforces have fostered a collaborative approach in extremely challenging areas of climate policy, ensuring enhanced delivery over time. Summary detail on the taskforces and related structures is provided in table 6.2 below.

Taskforce	Summary
Just Transition	A Just Transition Taskforce was established in 2023 which has brought the social partners together to make detailed recommendations to Government on the future structure, functions and membership of a Just Transition Commission
Citizen Engagement	A Climate Communications and Engagement Taskforce was established in 2022 to drive strategic climate communications and citizen engagement
Communications	A Climate Communications Coordination Committee, established in 2021, is chaired by the Department of An Taoiseach and coordinates climate-related communications across Government
Public Sector	A Public Sector Working Group (reporting to the Heat and Built Environment Taskforce) is undertaking a detailed assessment of the options available to support the delivery of the public sector's decarbonisation objectives with a particular focus on incentivising early action
Electricity	An Offshore Wind Delivery Taskforce ⁴⁴ was established in 2022 and has developed a system-wide implementation plan. An Accelerating Renewable Electricity Taskforce was established in 2023 to identify, coordinate, and prioritise the development and implementation of the policies required to ensure we meet our 2030 onshore renewable electricity targets, as set out in CAP23
Industry	An Industrial Heat Decarbonisation Working Group (reporting to the Heat and Built Environment Taskforce) is focusing on decarbonising industry and enterprise which is key to our future economic competitiveness
Residential Built Environment	A Heat and Built Environment Taskforce ⁴⁵ has been established to accelerate and drive delivery in relation to retrofitting, renewable heat, district heating and decarbonisation of the building stock
Commercial Built Environment	A Commercial Built Environment Working Group (reporting to the Heat and Built Environment Taskforce) focused on long-term decarbonisation of the commercial sector
Transport	A Leadership Group was established 2022 to drive delivery of the Sustainable Mobility Policy Action Plan and Pathfinder Programme
Agriculture	The Department of Agriculture, Food and the Marine has established five high-level Working Groups across Beef and Dairy; Inputs and Additives; Land Use, Land Change and Forestry (LULUCF); the Marine Environment; and Public Sector, to address barriers and challenges to implementation of climate action
LULUCF	A high-level Oversight Group, and Technical and Stakeholder Engagement Working Groups, have been established in 2023 to deliver Phase 2 of the Land-use Review

⁴⁴ [gov.ie](http://www.gov.ie) - Offshore Wind Delivery Taskforce (www.gov.ie)

⁴⁵ [gov.ie](http://www.gov.ie) - Heat and Built Environment Taskforce (www.gov.ie)

6.4.3 Key Performance Indicators

A monitoring and reporting system to track progress against the Key Performance Indicators (KPIs) set out in Climate Action Plans has been developed. Starting in 2024, DECC will publish an annual KPI Report, complementing the quarterly reporting by the Department of An Taoiseach, and the periodic reporting by the EPA and CCAC.

6.5 Climate Proofing of Government Decisions and Investments

To better inform Government Memoranda, we will use a standardised, evidence-based approach to evaluating the climate impact of Government decisions and investments. This will enable a consistent approach to considering proposals across sectors, and support Government in meeting our legally binding national and EU climate targets.

6.6 Non-compliance with the Carbon Budgets and Sectoral Emissions Ceilings

As required, corrective or additional measures will be introduced to assist in reaching our climate targets. However, at the end of a five-year carbon budget period, any excess emissions will be carried forward to the next budgetary period, with that carbon budget reduced by the amount of the excess emissions. DPENDR will continue to monitor and review potential compliance costs associated with reaching Ireland's EU climate and energy targets, including applying methodologies to apportion any compliance costs to across the sectors with excess emissions.

6.7 Alignment with Ireland's Long-term Climate Strategy

As part of the strengthened governance framework provided for under the Climate Action and Low Carbon Development (Amendment) Act 2021, a national long-term climate action strategy is required to be prepared not less than once every 5 years and it must specify the manner in which it is proposed to achieve climate neutrality no later than 2050. The strategy must include:

- projected reductions in GHG emissions and the enhancement of removals by sinks, for a minimum period of 30 years;
- projected reductions in GHG emissions in each of the relevant sectors with sectoral emissions ceilings and the enhancement of removals in these sectors, for a minimum period of 30 years;

- an assessment of potential opportunities for achieving reductions in GHG emissions in the sectoral emissions ceilings' sectors.

Ireland's current Long-term Climate Strategy, published in April 2023, builds on the decarbonisation pathways set by the carbon budgets, sectoral emissions ceilings and CAP23, to ensure coherent and effective climate policy. It is underpinned by analysis of transition options across each key sector of the economy and provides a crucial link between Ireland's 2030 and 2050 climate targets. The strategy was shaped by responses received from a wide range of stakeholders to a public consultation in 2019. Notwithstanding that these responses remain relevant in the current policy context, the Minister launched a further public consultation in 2023 given the important climate policy developments since 2019. The inputs received through this consultation have formed the basis for preparing an updated Long-term Climate Strategy, complying with the requirements of both national and EU law.

6.8 Alignment with EU Governance and Reporting Framework

Ireland's climate governance and reporting framework is informed and guided by the obligations and requirements set out in the relevant EU legislation and regulations. The European Green Deal, published in 2019, frames the EU's response to climate breakdown. It is a growth strategy aimed at transforming the EU into a climate-neutral, fair, and prosperous society, with a modern, resource-efficient, and competitive economy. The European Green Deal is underpinned by the European Climate Law, enacted in 2020, which:

- Sets legally binding EU-wide targets (reducing net GHG emissions by at least 55% by 2030, compared to 1990 levels; and achieving net-zero GHG emissions by 2050);
- Establishes, for the first time, a separate EU land-based net carbon removals target of 310 MtCO₂eq. by 2030;
- Commits to negative emissions after 2050;
- Calls on the EU Commission to make a proposal to set a EU-wide climate target for 2040.

Ireland contributes to the achievement of the EU-wide 2030 targets through legally binding national targets under the EU Effort Sharing Regulation, as well as through obligations under the Renewable Energy and Energy Efficiency Directives, with a requirement to report every two years from 2023 onwards on our integrated National Energy and Climate Plan (NECP).

6.9 Actions

The actions in Table 6.3 below will be undertaken in support of Government policy on climate change. Where these actions are high-impact actions new to 2024, they are also included in the 2024 Annex of Actions. The 2024 actions that are within the Annex will be reported on quarterly by the Department of the Taoiseach.

Table 6.3 – Actions

Action Number	Action
GV/24/1	Publish first annual KPI report
GV/24/2	Introduce a separate sectoral emissions ceiling for public sector buildings for the second carbon budgetary period (2026-2030), along further revisions to the Sectoral Emissions Ceiling Ministerial Accountability Framework from 2026 to better align accountability with relevant Ministerial sectoral responsibilities

7. Ensuring a Just Transition to a Climate Neutral Ireland

Key Messages

State of Play

- The Just Transition Framework was established in the 2021 Climate Action Plan
- Further education and skills for climate action is being delivered by the further education and training (FET) sector guided by the SOLAS Green Skills for Further Education and Training 2021-2030 Roadmap
- Social protection policies continue to strengthen activation and training responses for at risk employment. The annual budget social welfare package redistributes carbon tax revenues to lower income households

Current and Future Action

- The Just Transition Framework is being progressively integrated into the annual Climate Action Plan cycle and sectoral policymaking. This is highlighted in the examples which have been provided in sectoral chapters of this plan
- A Just Transition Taskforce has been established, to provide advice to Government on the future structure, functions and membership of a Just Transition Commission
- The Government will act on the National Economic and Social Council report, Just Transition in Agriculture and Land Use, which sets out a series of recommendations on ensuring socially- and farmer-inclusive transition processes
- The Government has commissioned research to inform development of a Just Transition Indicators Framework to support measurement of progress towards a just climate transition

Expected Outcomes

- The Just Transition Framework will be fully mainstreamed across climate action policy making and delivery
- Higher and further education and training provision will fully meet the demand for the range of low carbon skills required across the economy
- The cost of climate action will be shared equitably across society

7.1 Introduction

The Climate Action and Low Carbon Development (Amendment) Act 2021 set Ireland on the pathway to a 51% reduction in emissions by the end of this decade, and to net-zero emissions no later than 2050. The Act situates a just transition to a climate neutral economy

as a process, within the wider statutory framework of climate action, which endeavours, as far as is practicable, to maximise employment opportunities, and support persons and communities that may be negatively affected by the transition. The National Economic and Social Council (NESC) defined a just transition as “one which seeks to ensure transition is fair, equitable and inclusive in terms of processes and outcomes”.⁴⁶ Therefore, just transition refers both to the broader policy framework of climate action to support individuals and communities in the transition, as well as the process of ensuring that individuals and communities have a voice and role in shaping these supports.

Our climate policies seek to protect the most vulnerable through our shared understanding that the transformational transition to deliver these targets is fair, and just, with costs shared equitably. The Just Transition Framework, first articulated in Climate Action Plan 2021, structures how we will integrate just transition considerations into our climate action policies, as highlighted by sectoral examples provided throughout this Plan. As outlined below and in the Citizen Engagement chapter, the National Dialogue on Climate Action (NDCA) has just transition at its core, providing a forum for people to input on climate action and its impacts.

Strong climate governance and progressive policies contained in this Climate Action Plan are enabling Ireland’s response to the challenges and opportunities ahead. The transition will require targeted supports to help particularly impacted groups, regions and communities to adapt and realise the benefits of opportunities generated by the transition. Work continues to develop enterprise, education, and training systems that are responsive, targeted, and effective. Progressive carbon taxation policies will provide targeted increases in social welfare and other initiatives to address the risk of household fuel poverty.

⁴⁶NESC (2020) Addressing Employment Vulnerability as Part of a Just Transition in Ireland http://files.nesc.ie/nesc_reports/en/149_Transition.pdf

7.2 Just Transition Framework and Principles

Figure 7.1 – Just Transition Principles



The just transition framework is made up of four principles:

2. An integrated, structured, and evidence-based approach to identify and plan our response to just transition requirements;
3. People are equipped with the right skills to be able to participate in and benefit from the future net zero economy;
4. The costs are shared so that the impact is equitable and existing inequalities are not exacerbated;
5. Social dialogue to ensure impacted citizens and communities are empowered and are core to the transition process.

By aligning design and implementation of climate policy with these principles, we can maximise employment opportunities, supporting those negatively affected by the transition.

7.3 Principle 1: An integrated, structured, and evidence-based approach to identify and respond to just transition needs as they emerge

It is likely that the future impacts of our transition to a climate neutral economy will be both incremental and broadly realised, with occupations closely linked to fossil fuels and agriculture practices more significantly affected. Concentrated impacts may also be seen

in specific parts of the country.

7.3.1 An Integrated and Structured Approach

We have integrated the management of a just transition into the annual policy development and reporting cycle for climate action. Following extensive consultation with key stakeholders, Minister Ryan established a Just Transition Taskforce in 2023 which has brought the social partners together to make detailed recommendations to Government on the future structure, functions and membership of a Just Transition Commission. This will build on the mandate for a Commission set out in Climate Action Plan 2023, which proposed the following tasks for the Commission:

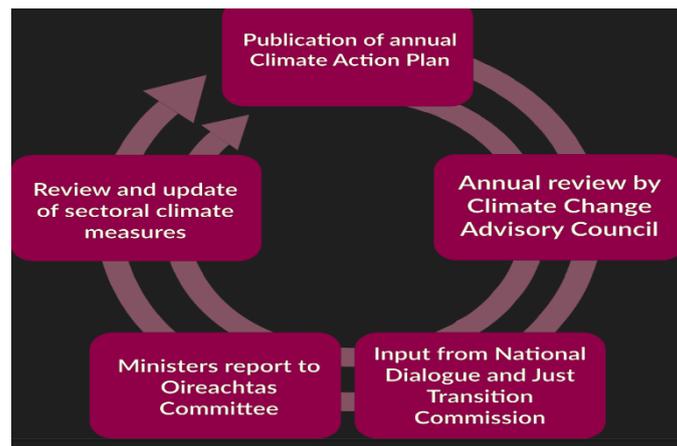
- Monitoring the implementation of the just transition principles through successive Climate Action Plans , producing reports and recommendations to the Government and to the Oireachtas on progress;
- Commissioning research to examine which sectors of the economy are most likely to experience disruption as a result of the transition, as well as exploring solutions to mitigate against these challenges;
- Advising and supporting the Minister and Government in relation to social dialogue, including the NDCA, in a manner which effectively integrates just transition considerations;
- Examining specific just transition challenges as requested by the Minister and providing recommendations to Government on potential solutions to mitigate against these challenges.

When established, it is envisaged that the Commission will provide long term, evidence-based, independent advice to the Government on the just transition implications of climate policy development and implementation, having regard to the Climate Action Plan and our Long-term Climate Strategy, including identifying potential responses to just transition needs as they emerge. The Commission will be able to build on the strong research evidence base and engagement through the NDCA, and the annual review from the Climate Change Advisory Council (CCAC), in order to develop its advice to Government.

In the preparation of annual Climate Action Plan and our periodic Long-term Climate Strategy, the Government and sectoral Ministers will have regard to the requirement for a just transition to a climate neutral economy which endeavours, as far as is practicable, to maximise employment opportunities, and support persons and communities that may be negatively affected by the transition. Each Minister will consider their respective climate

policy responsibilities against the principles of the just transition framework set out above and any recommendations from the CCAC and the Just Transition Commission. Ministers will report to the Oireachtas on how the principles are being addressed within their sector, including the policies, mitigation measures and adaptation measures within each sector.

Figure 7.2 – Incorporation of Just Transition into Annual Climate Policy Cycle



The NDCA continues to gather input, on a rolling basis, about the key challenges facing individuals and communities in the transition, and this will be complemented by the development of a set of indicators for a just transition. The NESC will continue to provide strategic advice, research, and analytical support for a just transition and supporting analysis and dialogue in relation to sectoral issues.

7.3.2 Developing our Evidence Base

Our capacity to anticipate and plan for a just transition requires a robust evidence base to support policy development and effective ongoing monitoring. As our climate action progresses, there are incremental risks and opportunities in the context of a just transition – this may impact particular regions, sectors, or occupations. Existing analysis has helped to build a strong quantitative and qualitative evidence base for future policy design and implementation, including:

- NESC reports on *Addressing Employment Vulnerability as Part of a Just Transition in Ireland* (2020) and *Exploring a Just Transition in Agriculture and Land Use* (2023), and related research publications such as *Exploring Place-based Opportunities for Policy and Practice in Transition* (2022);
- The annual reviews and working papers of the CCAC;

- A three-year research programme under the Energy Poverty Action Plan is being carried out by the Economic and Social Research Institute (ESRI), which includes energy efficiency, and income and energy poverty and health outcomes, and is informing the work of the Energy Poverty Action Plan Steering Group;
- The Government published several important reports relating to Ireland's bioeconomy, namely the second progress report on the implementation of the *National Policy Statement on the Bioeconomy*, and the first report of the Bioeconomy Stakeholder Forum and the *Circular Bioeconomy Outlook Study 2023-2050*;
- Teagasc's annual *National Farm Survey*, which examines the micro-economic, environmental, and other socio-economic and socio-demographic indicators relating to the principal Irish economic farm types;
- Ireland's *Territorial Just Transition Plan for the EU Just Transition Fund*, where territorial designation was based on quantitative, qualitative, and spatial statistical analysis of impacts of the transition at municipal district level;
- The Environmental Protection Agency's *Thematic Research Areas Assessment*, which highlights how research can support the development of greater policy coherence for climate action, including in relation to supporting a just transition.

The 2023 Annual Review of the CCAC recommended the development of evidence-informed just transition pathways across all sectors to reduce national greenhouse gas emissions and build adaptive capacity and resilience to climate change. It also recommended that a set of national indicators is developed to measure the implementation of the just transition principles across policy actions.

Work will begin in 2024 on the development of a suite of suitable indicators for adoption by Government, guided by measurement tools that currently exist, and by the processes that have been put in place to develop and report on our progress towards the Sustainable Development Goals, as well as the development of a national well-being framework.

7.4 Principle 2: People are equipped with the right skills to be able to participate in and benefit from the future net zero economy

7.4.1 Ireland's Decarbonisation Opportunity

A climate neutral Ireland will bring new, green employment opportunities. The Climate Action Plan will drive the creation of new jobs with alternative skills requirements in individual sectors, including building retrofits, renewable energy generation, sustainable mobility, and new farming practices.

Climate action presents opportunities for existing supply chains and new business formation. As businesses take steps towards decarbonising and reducing their climate impact, there is an opportunity to develop and seize new employment opportunities. The Government has committed funding to several different schemes at national and local levels to assist organisations in activities such as re-training, transitioning to lower carbon operations, and research and development. The Climate Toolkit for Business portal⁴⁷, provides practical and cost-effective actions to support the low-carbon transformation of businesses, including signposts to available funding opportunities. Local Enterprise Offices (LEOs) or Education and Training Boards (ETBs) continue to scope re-training opportunities on a case-by-case basis.

7.4.2 Ireland's System of Skills Development

SOLAS's Green Skills for FET Roadmap 2021-2030 is guiding the response of the FET sector to the future skills requirements of the green economy, including the development of specific and transversal green skills.

Continuous pre-emptive workforce development is required to maximise opportunities in the transition. Ireland's higher and further education systems are providing in-demand training to respond to the decarbonisation of the economy by adapting existing provision, and putting in place additional, training spaces where needed. Our further education model is centred on apprenticeships, transferrable skills, and lifelong learning, to keep pace with future changes. Ireland's skills architecture will minimise skills mismatches and ensure our approach to skills development is routed towards the green transition and broader areas of opportunity and growth. Lifelong pathways between, and within, further and higher education and training will advance lifelong learning rates.

7.4.3 Forecasting Future Skills Needs

The Expert Group on Future Skills Needs report, *Skills for Zero Carbon – The Demand for Renewable Energy, Residential Retrofit and Electric Vehicle Deployment Skills to 2030*, sets out the demand for, and nature of, the skills required to deliver on key elements of Ireland's Climate Action Plan ambitions to 2030. It identifies the nature and scale of the skills needs of enterprises supporting the transition to a low carbon economy and includes a suite of recommendations that can be drawn upon to ensure that these future skills needs are fully addressed. Regional Skills Fora continue to play an important role in identifying future skills

⁴⁷ www.climatetoolkit4business.gov.ie

needs emerging from a greener economy, feeding directly into the regional skills development pipelines through the ETBs. Each forum provides for ongoing regional engagement between the employment, enterprise, education, and skills sectors, such as LEOs, Enterprise Ireland, the Department of Further and Higher Education Research, Innovation and Science (DFHERIS), Skillnet, and ETBs.

To support Climate Action Plan delivery, and through the Offshore Wind Energy Programme, DFHERIS in collaboration with the Department of the Environment, Climate and Communications have established an Expert Advisory Group on the skills and workforce requirements for offshore wind, while Greentech Skillnet have undertaken an analysis of the skills and workforce requirements for offshore wind, completed in Q3 2023. Recommendations identified in this report will ensure that future output from the tertiary sector is aligned with projected workforce requirements. Close collaboration between relevant partners in the education sector and industry experts will enable delivery of the skills, training, and education requirements for offshore renewables. Other key decarbonisation sectors may be subject to specific skills assessment analyses in future.

7.4.4 Support for Employees at Risk and Labour Market Activation

An upcoming challenge for training providers will be to identify which jobs are at risk and which are in demand, requiring monitoring of new types of jobs emerging and continually reviewing the skills needs of these new employment opportunities. The CCAC annual review 2023 emphasised that understanding vulnerability in the context of a just transition is essential, proposing that vulnerability assessments across society, the economy, the environment, and health are required to ensure a just transition across all sectors. This will ensure the protection of workers and those who will be negatively affected by the transition but also identify exposed groups more broadly, such as vulnerable communities.

Ongoing horizon scanning, including building on the Regional Enterprise Plans and Regional Skills Fora, is required to identify employment opportunities from the green transition, and mapping these to current training provision, setting out where new training and education courses are needed. Existing research highlights that it is critically important to enhance the skills, training advice, and supports, for workers before they become unemployed, by delivering one-to-one coaching, counselling, and mentoring. This can be supported by making greater use of skills audits with at-risk workers to better identify transferable skills and competencies, including informal occupational skills, which may link workers to new opportunities they had not considered or did not think they had

the qualification for. Employment activation for those on the Live Register, as well as creating supported job placements, will play a key role in providing opportunities for people at the margins to be part of Ireland's transition to a greener economy.

Box 7.1 – Training Supports

Training Supports

In 2023, provision of a training programme on Nearly Zero-emission Building (NZEB) Fundamentals has commenced as a pilot for prisoners at Wheatfield and the Midlands Prison, and a Quality and Qualifications Ireland (QQI) Level 4 Retrofit Assistant programme has also been developed, focussed on catering to marginalised groups and the unemployed.

Dublin Port Construction project partners with Dublin Port to provide training in construction skills and engages participants with employers, providing work pathways to individuals who may have been out of work for long periods, those who are newly arrived in Ireland or those who may face other barriers such as criminal records, homelessness, or recovery from drug addiction. The project has trained 382 people to date in 2023, with a 60% success rate in participants being employed.

7.5 Principle 3: The costs are shared so that the impact is equitable and existing inequalities are not exacerbated

To ensure a just transition to a climate neutral Ireland, the costs must be shared so that the impact is equitable and existing inequalities are not exacerbated. It is recognised that where compensatory measures are not taken, increases in the carbon tax can have a regressive effect on low-income households as they spend a greater share of their income on carbon intensive goods, such as heating fuel. The Government has acted, informed by ESRI analysis on the distributional impacts of increasing carbon tax, to ensure that the proceeds of increases in the carbon tax are used to protect households most exposed to higher fuel and energy costs, and to invest in new climate action programmes. This includes expenditure on a socially progressive national retrofitting programme, and agri-environment programmes, to encourage and incentivise farmers to farm in a greener and more sustainable way. Considerations around costs and equity are not limited to the carbon tax

and also apply to other fiscal measures, as well as to the provision of grants or other supports to assist the implementation of climate policy.

7.6 Principle 4: Social dialogue to ensure impacted citizens and communities are empowered and are core to the transition process

The CCAC 2023 Annual Review identified the need for sustained dialogue across all of Irish society to ensure equitable and fair outcomes, recommending that this should be grounded in evidence-based best practice that ensures an inclusive representation of Irish society.

The NDCA is the key mechanism for facilitating social dialogue on climate action, incorporating just transition at its core. The National Dialogue funds, supports, and enables active engagement on climate action at a local and national level. Citizen engagement sessions are held throughout the year and are supported by ongoing research, including the Climate Conversations as a core component of the annual programme. The National Climate Stakeholder Forum provides ongoing opportunities to engage all relevant stakeholders in discussion on a just transition. This strong participative approach enables stakeholders to actively support Government in identifying and prioritising transition challenges, and co-designing responses to these challenges. The NDCA complements other engagement activities undertaken by Departments and Agencies at sectoral, local, regional, and national levels.

NDCA inputs received in 2023 reinforced the view of stakeholders that just transition should be integral to all aspects of climate action, with a key measure of success for climate transformation being the extent to which the most vulnerable communities can be protected and thrive.

Similar themes emerged from the National Youth Assembly on Climate, which raised many just transition related recommendations, including: an Ireland where people feel safe to walk and bike; more accessible and affordable public transport in rural areas; and reskilling and supporting farmers to be more sustainable through training, education, grants, incentives, so that they can be empowered to contribute to climate solutions.

The Climate Conversations have highlighted the importance of communicating just transition messages and how sectors will be supported at every stage of the transition, especially around upskilling, retraining, and financial supports, noting the needs of the most

impacted and marginalised groups, such as Travellers, older or less able members of society, who have expressed a desire to have more engagement and participation in the transition to climate neutrality.

7.7 Actions

The actions in Table 7.1 below will be undertaken in support of Government policy on climate change. Where these actions are high-impact actions new to 2024, they are also included in the 2024 Annex of Actions. The 2024 actions that are within the Annex will be reported on quarterly by the Department of the Taoiseach.

Table 7.1 – Actions

Action Number	Action
JT/24/1	Develop the green skills and capacities required for a net-zero economy through Education and Training Boards
JT/24/2	Develop the green skills and capacities required for a net-zero economy through Springboard+ and HCI Pillar 1
JT/24/3	Work with key stakeholders on the Just Transition Taskforce to devise a recommended approach on the future structure, functions, and membership of a Just Transition Commission

8. Delivering a Just Transition in the Midlands Region

Key Messages

State of Play

- Significant exchequer investment has been mobilised to support the transition of existing workforces and create new enterprise and employment opportunities in the Midlands, preparing the region to maximise the opportunities that decarbonisation will bring
- Exchequer investment is being complemented by funding through the EU Just Transition Fund. Ireland's Territorial Just Transition Plan and Programme for 2023-2027 will invest up to €169 million in the region

Current and Future Actions

- Delivery of National Just Transition Fund Projects, supporting communities in the wider Midlands region, will continue in 2024
- The EU Just Transition Fund Programme is supporting nine new streams of funding benefitting the wider Midlands region . Activity in 2024 will focus on supporting:
 - Projects that support bottom-up local and regional initiatives that align with Regional Enterprise Plans and Local Economic and Community Plans and deliver new economic and employment opportunities
 - Intra-regional public and private transport networks, including supports for the installation of publicly available fast charge point infrastructure and the decarbonisation of public and private local rural bus routes
 - The restoration of peatland sites, including raised and blanket bog, fens, and other wetland types, along with the development of amenity and tourism opportunities where appropriate
 - The Regenerative Tourism and Placemaking Scheme 2023-26 for the Midlands supporting the development of tourism, outdoor and recreation amenities
 - Projects that advance initiatives for a competitive bioeconomy by supporting research, and development, innovation, training, and stakeholder cooperation
 - Research, knowledge transfer and monitoring of innovative ways of reducing emissions from peat soils on permanent grassland where the carbon pool is very vulnerable, especially when drainage occurs.

Expected Outcomes

- Strengthened resilience and sustainability of the regional economy of the Midlands in line with national climate objectives

8.1 Responding to the Transition

Exchequer and EU resources are providing continuing support to the Midlands region in addressing the socio-economic impacts following the closure of peat-fired power stations and the cessation of commercial peat extraction as a feedstock for power generation.⁴⁸ Our continuing work to support a just transition in the region is set out in this chapter.

8.2 Measures to Deliver a Just Transition in the Midlands

8.2.1 A Bottom-up Approach through the Midlands Regional Transition Team

In line with the ethos of just transition, the Midlands Regional Transition Team (MRTT) was established under the auspices of the Midlands Regional Enterprise Plan (MREP), to mitigate job losses, and to develop alternative employment opportunities. The MRTT, covering the wider Midlands Region, continues to play an important, locally-led role in coordinating key regional stakeholders to support the development of projects with transformative potential in the region. The MRTT also provides representation for the region on the EU Just Transition Platform.

8.2.2 Tailored Funding Interventions

8.2.2.1 National Just Transition Fund

The National Just Transition Fund (NJTF) is continuing to support a diverse range of innovative projects that contribute to the economic, social, and environmental sustainability of the region. A selection of successful NJTF projects in the Midlands are described below to highlight the range and innovation shown by Midlands communities in delivering new enterprises, tourism and heritage projects, development of greenways, and opportunities for education, training, and reskilling.

⁴⁸ In this chapter, the wider Midlands region refers to the counties of Galway, Kildare, Laois, Longford, Offaly, Roscommon, Tipperary, and Westmeath

Figure 8.1 – Incubation units and extension funded by the NJTF at Ferbane Business and Technology Park⁴⁹



Ferbane Business and Technology Park is a community-owned, not-for-profit company, campus, and innovation centre. By extending an existing building more food production units were created and are used by local start-up food producing companies. The centre aims to support the transition to a resilient, sustainable, thriving net-zero local economy and community. Funding has facilitated expansion, including the provision of two kitchens in the incubation unit, remote working office space, and the installation of 60kW of solar panels.

Figure 8.2 – EcoTourism Service: Disability Friendly Passenger Boat and Centre⁵⁰

⁴⁹ Photo courtesy of Kevin Gavin

⁵⁰ Photos courtesy of Lough Ree Access For All



This project received €471,693 from the NJTF. The photos show the centre building one of the boats used to provide the service.

Figure 8.3 – Moore Community Hall at Lakeland, Ballydangan, County Roscommon⁵¹



This project received €55,250 from the NJTF. The photos show remote working and training facilities.

8.2.2.2 EU Just Transition Fund

The EU Just Transition Fund (JTF) is supporting the most affected regions in EU Member States to meet the challenges associated with achieving the EU's climate targets for 2030 and climate neutrality by no later than 2050. It will invest in areas that will contribute to alleviating the impact of the transition, by financing the diversification and modernisation of the local economy, and by mitigating the negative repercussions on employment in the territories most impacted by the transition away from fossil fuel use. The Eastern and Midland Regional Assembly has been appointed as Managing Authority for Ireland's EU JTF Programme, which will invest up to €169 million in the wider Midlands region in the period to 2027.

⁵¹ Photos courtesy of Valerie Duff

The Programme includes three complementary investment priorities which are designed to enhance the regional economy, address existing deprivation and rural depopulation, and place the region on a pathway to a more diverse and resilient economy based on climate neutrality.

Priority 1: Generating employment for former peat communities by investing in the diversification of the local economy

- €38m will be invested, through Fáilte Ireland, in the economic diversification of the territory by supporting tourism investments in Midlands micro-enterprises, small and medium-sized enterprises (SMEs) and economic stakeholders in key sectors, allowing them to set-up, modernise, diversify, and expand; and develop the digital capabilities of tourism SMEs to make the most of opportunities offered by digitalisation;
- €29 million will be provided, through Pobal, to support the implementation of bottom-up local and regional initiatives, which align with the priorities of the eight Local Economic and Community Plans and four Regional Enterprise Plans in the territory. This funding will support:
 - Investments in infrastructure that contribute at a local level to improving the business and consumer environment, in particular projects in the green economy, circular economy and low carbon economy;
 - Investments in infrastructure for the purposes of skills training, to enable people to return to work, transition within employment, or to remain in employment;
 - Training or skills programmes that make a positive contribution to addressing climate change;
 - Investments in heritage infrastructure, including the re-purposing of sites from industrial use;
- The Department of Agriculture, Food and the Marine (DAFM) will invest up to €20 million in development and innovation activities to contribute to the growth of a sustainable and circular bioeconomy, including fostering the transfer of advanced technologies, through living labs and demonstration initiatives, for sustainable, higher value, products for new circular, resource-efficient biobased industries.

Priority 2: Supporting the rehabilitation and restoration of degraded peatlands and regeneration and repurposing of industrial heritage assets

- The National Parks and Wildlife Service (NPWS) of the Department of Housing, Local Government and Heritage will invest €12 million in the rehabilitation and restoration of degraded wetlands across multiple project sites, encompassing research, education, stakeholder engagement activities, and the development of visitor amenities;
- DAFM will provide up to €15 million for research, knowledge transfer and monitoring activities in relation to land management improvements for farmed peat soils under grass, to identify suitable land management practices to maintain low greenhouse gas (GHG) emissions and support biodiversity while farming under wet conditions;
- Fáilte Ireland will provide up to €30 million to develop a network of trails, and for regeneration and repurposing of industrial heritage assets, no longer be used for the extraction, transport, and processing of peat.

Priority 3: Providing former peat communities with smart and sustainable mobility options to enable them to benefit directly from the green transition

- The Department of Transport (DoT) and National Transport Authority will provide over €3 million for the decarbonisation of public local rural bus routes, including the purchase of electric buses and installation of charge points, supporting private bus operators in the territory to transition to electric vehicles;
- €15million will be provided, through the DoT and Zero Emission Vehicles Ireland, for the installation of publicly available fast charge point infrastructure at community facility sites.

8.2.2.3 Enhanced Decommissioning, Rehabilitation and Restoration Scheme

The EU's Recovery and Resilience Facility, through the National Recovery and Resilience Plan, is investing up to €108 million in the Enhanced Decommissioning, Rehabilitation and Restoration Scheme (EDRRS). The scheme aims to rehabilitate approximately 33,000 hectares of peatlands, across 82 Bord na Móna bogs, previously used for peat extraction for electricity generation. These rehabilitation works will take place over a period of 5 years. It is the largest programme of bog rehabilitation in the State's history, involving a wide array of engineering and hydrology works designed to reinstate, encourage, and accelerate natural processes. In 2023, over 200 people worked on EDRRS, and the scheme will support up to 350 jobs over its lifetime. As of October 2023, over 15,000 hectares have been rehabilitated. Once rehabilitated, the peatlands will support peat forming habitats and a mosaic of wetlands, heathlands, grasslands, and native woodlands, protecting the storage of millions of tonnes of carbon, enhancing biodiversity, and contributing to Ireland's target of carbon neutrality by no later than 2050, while developing the capacity of peatland communities to respond to challenges faced by transitioning to a net-zero economy.

8.2.2.4 EU LIFE Peatlands and People Integrated Project

The seven-year, €10 million EU LIFE Peatlands and People Project, with a consortium led by Bord na Móna, is continuing implementation in the Midlands under its three pillars:

- Best-practice restoration and rehabilitation of peatlands for the reduction of GHGs and enhancing carbon storage potential, both in the integrated project and also of additional peatlands through complementary actions and dissemination activities;
- A just transition accelerator programme, *Accelerate Green*, for innovation focusing on low-carbon and circular economies to support the region economically;
- Development of a Peoples Discovery Attraction to promote the importance of climate action, focusing on the role of peatlands and behavioural change, with a long-term objective to establish an educational space that cultivates curiosity and climate literacy, providing a forum for dialogue and discovery. A number of locations in the Midlands are being considered at present for the location of this attraction.

8.2.3 Training, Education and Enterprise Supports

8.2.3.1 Midlands Regional Enterprise Plan 2022 – 2024

Led by the regional enterprise steering committees, the MREP has been prepared using a bottom-up, collaborative approach involving Local Authorities, IDA Ireland; Enterprise Ireland; Local Enterprise Offices (LEOs); Local Authorities; Higher and Further Education Bodies, and businesses. The MREP has a dedicated objective to transition to a net-zero economy with associated actions.

8.2.3.2 Green Skills

Laois Offaly Education and Training Board (LOETB), in partnership with Teagasc, and Gurteen and Mountbellew Agricultural Colleges, is providing courses to part-time farmers in sustainable agricultural and horticultural practices and peatland rehabilitation. Programmes available include the Sustainable Agriculture Traineeship and a series of bespoke modular programmes, including Lean Agriculture. LOETB, in collaboration with the Office of Public Works, SOLAS and the NPWS, is also developing two new training programmes on Nature Skills Training, one aimed at contractors who undertake works in sensitive natural environments and the other focussed on managers in local government and State Agencies

who are involved in tendering and procurement for works in and around sensitive environments, including protected habitats. This course sets out relevant legislation, ecological awareness, biosecurity, pollution prevention, and awareness of invasive species.

Taking a tertiary approach to green skills and the digital economy, Education and Training Boards are partnering technological universities (Shannon, Atlantic and South-East) offering pathways from Quality and Qualifications Ireland (QQI) Levels 3 to 8, to addressing specific skills gaps related to the green (digital) economy. This will equip people with the knowledge and skills to play an active role in climate change and live more sustainable lifestyles; and enhance the development of sustainable rural communities, providing people with the capacity to transition to green and digital societies and economies. These courses are providing accessible opportunities to gain competencies that are valued and sought after in the labour markets of today and tomorrow.

8.2.3.3 Modern Methods of Construction

The establishment of a National Construction Training Centre and demonstration park in Mount Lucas, County Offaly, committed to in *Housing for All*, will bring new opportunities to the Midlands, as an accessible and interactive location for applied research, training and demonstration, reflecting the current and future needs of the housing sector. Those working in the built environment will be targeted for training and reskilling which will:

- Inform and support innovation within the built environment through the introduction of modern methods of construction methodologies and techniques;
- Create innovative education and demonstration facilities that include live testing (research) and training (skills development);
- Promote sustainability and the circular economy in the built environment.

Bord na Móna continues to offer subsidised re-training supports, through LOETB, including a new 5-month *Start Your Own Business Traineeship* programme to enable a transition from employment to entrepreneurship. This includes class-based tuition, workshops, self-directed learning, and work-based experiential learning and mentoring on a full-time basis. Bord na Móna will provide seed investment to successful start-ups, building on the company's successful *Accelerate Green* programme. Offaly LEO is a key partner on the programme offering support and mentoring to participants.

8.2.4 Renewable Energy Infrastructure and Geological Resources

Bord na Móna, the ESB and several private energy companies have announced investment plans for the region, which will support continued employment growth over the coming years. Supports for the development of community-based energy master plan are led by the Sustainable Energy Authority of Ireland (SEAI). This will provide a strong platform for community participation in future calls under the Renewable Electricity Support Scheme.

The SEAI Sustainable Energy Communities Programme continues to support Midlands communities, through local mentors and co-ordinators, on their decarbonisation journey. The mentors provide free guidance on how to form a sustainable energy community and develop an energy master plan, including establishing a baseline for energy used in the community and a register of opportunities for projects. By the end of 2024, it is estimated that investment of €450,000 will have supported the development of 30 energy master plans in the Midlands region.

The Geological Survey of Ireland will carry out a range of investigations and evaluate the geological potential of the Midlands, including producing a map and report outlining available resources and potential associated management considerations. It will also evaluate the possibility for communities and local economies to use resources, such as groundwater or geothermal energy, as part of the just transition, including assessing the feasibility of their use.

8.3 Actions

The actions in Table 8.1 below will be undertaken in support of Government policy on climate change. Where these actions are high-impact actions new to 2024, they are also included in the 2024 Annex of Actions. The 2024 actions that are within the Annex will be reported on quarterly by the Department of the Taoiseach.

Table 8.1 – Actions

Action Number	Action
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JM/24/1	Support the economic diversification of the local economy through the development of the regenerative tourism sector
JM/24/2	Support the implementation of local and regional economic strategies
JM/24/3	Support piloting, demonstration, and innovation for a sustainable and circular bioeconomy
JM/24/4	Support the restoration and rehabilitation of degraded peatlands
JM/24/5	Support research, knowledge transfer and monitoring activities on rewetting measures for farmed peat soils through the Midlands Carbon Catchment Study
JM/24/6	Support regeneration, repurposing and sustainable development of walking and cycling tracks and trails, and waterways
JM/24/7	Support decarbonisation of public local bus routes
JM/24/8	Support decarbonisation of fleet for private bus operators
JM/24/9	Provide publicly accessible vehicle charge point infrastructure at community facilities in the region

9. Citizen Engagement

Key Messages

State of Play

- Delivering on our climate ambition requires that the Government and the people of Ireland come together in a strengthened social contract for climate action and the co-creation of real solutions to these challenges

Current and Future Action

- Increasing awareness of climate change based on evidence through a whole of Government communications programme
- Delivering an inclusive programme of engagement at the national, regional, and community level to empower people to take climate action
- Coordinating whole of Government governance structures to support the effective delivery of the climate communications and engagement programme
- Delivering robust systems to measure climate action at all levels

Expected Outcomes

- A strengthened social contract between the Government and the Irish people that has arisen through collaboration on climate action
- Delivering the vision of climate action for Ireland through the shared values of fairness, collaboration, and positive change

9.1 State of Play

9.1.1 Background

In Ireland, the 2020 Programme for Government committed to reducing our greenhouse gas emissions by 51% by 2030 and becoming climate-neutral no later than 2050. Government must lead by example and has to adapt existing services; deliver

new systems, and infrastructures; and support stakeholders, enterprise, and individuals across society in making this transition.

It is clear that climate change affects everyone but not equally, and that it is incumbent on the Government to engage, enable and empower organisations, communities of practice, and individuals across the country to take climate action. For Ireland to make the transition in a fair way, it is critical that as many people as possible are given the opportunity to share their views, perspectives, and co-design the annual Climate Action Plan and related sectoral policies.

Under the National Dialogue on Climate Action (NDCA), the annual Climate Conversations is the mechanism through which we engage with a broad range of people across society through an online public consultation; workshops with populations vulnerable to the transition to climate neutrality; and interviews with people taking climate action to capture their stories. The findings are analysed and directly inform the annual Climate Action Plan.

The Environmental Protection Agency (EPA) *Climate Change in the Irish Mind* (2021) shows most people in Ireland (79%) say climate change should be a “very high” or “high” priority for Government. The study also found respondents supported funding programmes to help communities prepare for and adapt to the impacts of climate change (93%).

The Climate Conversations 2022 demonstrated that while there is, at present, widespread support for climate action from the public, and people are taking some action, there is a significant deficit in people’s capacities, access to resources and motivation to act. Lasting change requires that all citizens understand the urgency and scale of threat of the crisis. Climate Conversations, carried out through 2022 and 2023, articulate a voice of the public and stakeholders that is clear, responsive, and conveys a sense of urgency and enthusiasm to work with Government. It has allowed us to identify where people are making changes, and where they lacked information, knowledge, resources, or capacity to take climate action. These conversations showed that people need to learn by doing and need to see that the transition to a climate neutral future is fair and that everyone is contributing.

The EPA *Climate Change in the Irish Minds* study, supported by the NDCA, provides nationally representative data on the attitudes and behaviours of 4,000 members of the Irish public in response to climate change. It found that the vast majority of people in Ireland believe that climate change is happening and that it is caused by human

activities. Most people say they are willing to take actions to reduce climate change and to support Government climate policy, yet intentions to change personal economic behaviours are not as strong overall.

Box 9.1 – Insights from Climate Conversations 2022 and Climate Change in the Irish Minds⁵²

Insights from Climate Conversations 2022 and Climate Change in the Irish Minds	
<p>Climate Conversations 2022</p> <ul style="list-style-type: none"> • 92% worried about climate change • 82% it is important to them personally • 83% it will harm them personally • 95% it will impact future generations • 83% motivated to act • 85% already acting 	<p>Climate Change in the Irish Minds</p> <ul style="list-style-type: none"> • 70% we all have to play our part • 63% concerned about biodiversity • 55% concerned about the future of their community • 53% concerned about their children’s future

⁵² Climate Conversations 2022 Short Report: <https://assets.gov.ie/243537/f901a445-ff28-4fd5-9d36-a58c6a717bdd.pdf>

Climate Change in the Irish Mind: <https://www.epa.ie/publications/monitoring--assessment/climate-change/climate-change-in-the-irish-mind.php>

A comprehensive programme of engagement activities and research was delivered under the NDCA in 2023 as outlined in Table 9.2.

Box 9.2 – Summary of Key Deliverables in 2022/23

Summary of Key Deliverables in 2022/23

- Climate Conversations 2022 captured the views of over 4,300 members of the public, including populations who may be vulnerable to this transition, those not yet engaged, and those who are proactively taking climate action
- Three National Climate Stakeholder Fora engaged over 300 stakeholders
- The National Youth Assembly on Climate captured recommendations from young people on priorities for Government
- The EPA *Climate Change in the Irish Minds* study provided nationally representative data on the attitudes and behaviours of 4,000 members of the Irish public
- The Climate Communications and Engagement Taskforce was established
- The Advisory Group on Social and Behavioural Change met six times in 2023 to provide guidance to inform climate policy

In 2023, the NDCA expanded its outreach to proactively engage with populations not yet engaged and those particularly vulnerable to the transition to climate neutrality, through focus groups, workshops and interviews, as well as focusing in on a number of significant issues of concern – namely the gap emerging between people’s intention to take climate action and their capacity to do so.

Delegates at the 2023 National Youth Assembly on Climate (NYAC) called for a climate education programme for all ages to be introduced, and a cohesive media and communications strategy around climate action to be developed. It was also a key ask of the Climate Change Advisory Council in its 2023 Annual Review.

Across all levels of the education system, work is progressing under the Second National Strategy on Education for Sustainable Development: ESD to 2030, to ensure that all learners develop knowledge and skills to promote and advance sustainable development and improve their climate literacy. Through a whole of institution approach, learners will experience sustainability in action in their learning environments

and contribute to actions to reduce carbon emissions. Informal and non-formal education programmes that promote climate literacy will also be supported in 2024.

Box 9.3 – Recommendations from CCAC Annual Review 2023⁵³

Recommendations from CCAC Annual Review 2023

- “There must be effective and consistent engagement with communities, ensuring there is a fair and equitable transition, building and maintaining public support and action.” (6)
- “The momentum forged by the NDCA in 2022 must not be lost but must be built on to increase citizen engagement on climate issues ... Critical to the programme’s success are sufficient resources to ensure its delivery of outputs in 2023 and executing and reporting on the feedback loop, as set out in the NCAP, to demonstrate its effectiveness.” (32)

The approach adopted in 2024 will, therefore, build on the momentum achieved in 2023 and continue to be based on inclusiveness, fairness, and accessibility, grounded in measurable outcomes.

Cumulatively, these insights suggest that the public are concerned about climate change, yet they are very unsure about what climate action means for Government, what Government is doing about it, what other actors in society are doing, and what is expected of them and everyone else. They asked for clear consistent communications, “joined up thinking” and “ambitious policies” to be reflected “where they live”. It is clear from the research that climate change affects everyone, but not equally, and every organisation, business, and community in Ireland has a role to play. What is required is a programme of communications and engagement across Irish society through which Government can engage, enable, and empower everyone in society to take climate action.

⁵³ Climate Change Advisory Council 2023 Annual Review: <https://www.climatecouncil.ie/councilpublications/annualreviewandreport/CCAC-AR-2023-FINAL%20Compressed%20web.pdf>

9.1.1 A National Campaign of Communication and Engagement on Climate Action

To date, a *Whole of Government Climate Communications Strategy* has been developed by the Climate Communications Coordination Committee (CCCC). A national engagement campaign on climate action has been delivered through the NDCA since 2019. Oversight of the engagement programme is now provided by the Climate Communications and Engagement Taskforce (CCET). It is now deemed appropriate to develop and launch *A National Campaign of Communication and Engagement on Climate Action* which will be coordinated by the CCET and CCCC and include:

- Developing an overarching climate communications and information campaign, which supports people in understanding climate change and the benefits of climate action;
- Developing a concurrent and co-ordinated interactive dialogue and engagement programme, nationally, locally and at the community/network level;
- Providing specific engagement opportunities to those who are vulnerable to the transition to climate neutrality or who feel disenfranchised;
- Positioning Ireland as a global leader in climate communications and collective climate action;
- Measurement and evaluation of activity.

9.2 Measures to Deliver Targets in 2024

This *National Campaign of Communication and Engagement on Climate Action* will be delivered through two distinct but mutually reinforcing channels: 1) communications, which will be hardwired to 2) engagement channels, and it will be supported by clear governance structures, and a monitoring and evaluation framework. Communications and engagement are inter-related and will need to progress in lock step. Communications will help drive engagement, while engagement will inform communications.

9.2.1 Pillar 1 - Communications

A cohesive and accessible communications campaign will facilitate a well-informed public national and local discourse that clearly identifies challenges and opportunities.

It will assist the Government to build support for climate action and will demonstrate Government leadership. It will be an opportunity to promote available supports, particularly for those most vulnerable to the low carbon transition. It will also be an opportunity to communicate the wider benefits of climate action such as health, cost of living, and green jobs.

9.2.1.1 Campaign Specifics

- The campaign will build on work already undertaken to create a strong climate action identity across Government;
- The campaign will be grounded in a distinctly Irish identity and values, constructing a narrative that climate change touches the lives of people around Ireland in unique ways, but taking climate action is something we all do;
- The campaign will support and promote a *National Climate Action Communications and Engagement Programme*;
- The campaign will deliver clear and cohesive messaging;
- The campaign will be built on the shared values of positive change, collaboration, and fairness. This basis is informed by audience insights and the experience of communications teams across Government, and will be implicit in all Government of Ireland climate action communication;
- The campaign will be led by the Department of the Environment, Climate and Communications (DECC) in collaboration with the Department of An Taoiseach, with reporting on progress to the CCCC and CCET. We will work to develop and roll out the campaign, bringing in outside expertise for creative input and media-buying;
- The coordination of cross-Government climate communications and messaging to support the campaign will be led by the Department of An Taoiseach;
- The proposed campaign timeline will launch in February 2024 with an initial programme for 2024;
- Thoughtful, original, and creative communications will engage different audiences;
- A storytelling approach will showcase exemplars in different communities across the country;
- The engagement campaign, set out below, will include opportunities to hear from people, building Government's understanding of key audiences, and utilising what people say and feel in future communications. It will allow Government to identify the best platforms, messengers and framing to use to deliver messages;

- Outputs, results, and impacts will be measured and monitored against defined goals.

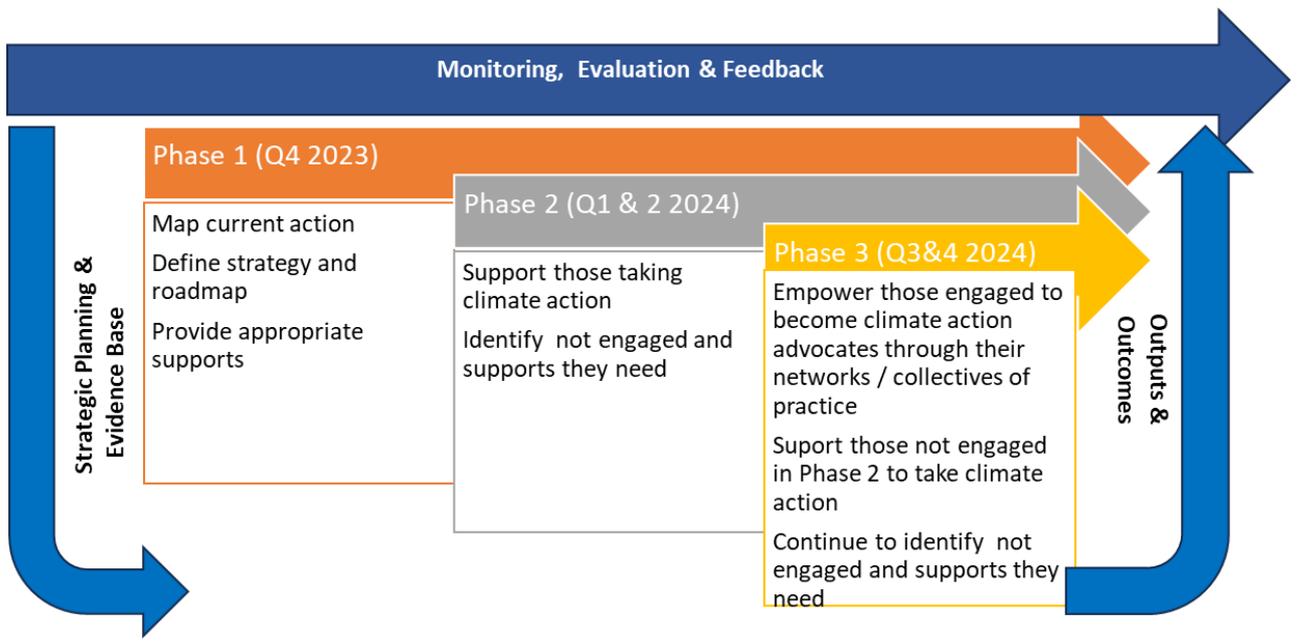
9.2.2 Pillar 2 - Engagement

Pillar 1 will be intrinsically linked to Pillar 2, Engagement. Ongoing communications will be informed by engagement activities, and delivered in a phased based approach

9.2.2.1 Phased approach to a National Programme of Engagement on Climate Action

This will be comprised of three phases as set out in Figure 9.1.

Figure 9.1 – Phased approach to the delivery of a National Programme of Engagement on Climate Action



Phase 1 – Mapping of Engagement Activities on Climate Action

- Mapping current engagement activities at all levels of society:
 - State: Government, Public Sector Bodies, and Local Authorities;
 - Business and industry: national network organisations/representative bodies, large companies, and local businesses groups;
 - Social and cultural organisations: community and voluntary groups, eNGOs, special interest groups, etc.

- Defining a strategic approach to a national conversation through organisations and networks across society founded on fairness, collaboration and positive change including:
 - The creation of a *Roadmap of Climate Engagement Activities* supporting the delivery of the *National Campaign of Communication and Engagement on Climate Action*, including a detailed overview of planned climate engagement activities, targeted engagement strategies for actions/projects, and developing materials that inform and educate key audiences;
 - The identification of appropriate supports to enhance the impact of organisations, networks, and community climate action across society;
 - Improved monitoring and evaluation of engagement across Government through the CCET and the CCCC.

Phase 2 – Delivery of a Programme of Engagement on Climate Action

- The provision of information, resources, and insights to support those taking climate action including:
 - Developing audience and audience personas;
 - Toolkits for engagement on climate action;
 - Relevant insights from social and behavioural research.
- The identification of those not taking climate action and engaging with them to develop strategies which empower them to take such action.

Phase 3 – Engaging the Disengaged, and Empowering the Engaged

- Empower those already taking climate action to become advocates through their networks and communities of practice and supporting networks of advocates that are self-sustaining;
- Continue to identify others not yet taking climate action and supports they need and engage those not yet taking climate action to begin acting;
- Developing a systematic mechanism for capture insights as output and outcome metrics and providing feedback from these climate actions providing inputs to communications and a tool for designing policy.

9.2.2.2 National Engagement on Climate Action

Engagement Actions Across Government and State Agencies

The CCET will support the better coordination of programmes of engagement on climate action being designed and delivered across Government Departments, and their Agencies, to ensure that a coherent approach is being taken; resources and insights are being used effectively across campaigns; and the impacts of these programmes are captured and shared.

National Youth Assembly on Climate

The NYAC acts as a consultative forum on climate issues capturing the voices of young people and facilitating their input into policy development. In 2024, the NDCA will continue to work with the Department of Children, Equality, Disability, Integration and Youth in the evolution of this forum to better engage with young people on climate action and examine the coordination of youth engagement on climate action across society.

National Climate Stakeholder Forum

The National Climate Stakeholder Forum is a deliberative workshop and functions as a consultative forum on climate issues. It involves meetings of the various climate taskforce groups and key stakeholders from across a wide range of societal actors (Government, Departments, Local Authorities, Public Sector Bodies, national organisations, academics, representative bodies, voluntary organisations, and community groups) who have the opportunity to discuss climate policy and provide input into its design and implementation. In 2024 this programme will be expanded to include regional and possibly sector specific forum meetings.

Climate Conversations

Climate Conversations 2024 will build on the approach developed in previous years delivering a more inclusive programme engaging with, and providing insights from, specific populations, bringing stakeholders and the public from more diverse backgrounds and perspectives into the dialogue. This will include:

- The annual public consultation on the next Climate Action Plan;

- Deliberative workshops involving those not yet engaged with climate action and populations most at risk or impacted by climate change;
- In-depth interviews with those taking climate action, building a repository of positive examples.

EPA Climate Conference, Climate Lecture Series and Support Workshops

The EPA hosts a series of annual engagement events, including its annual climate conference, climate lecture series, and workshops on engagement and participation. In 2024, the EPA's climate conference and lecture series will continue to be shaped by priority areas emerging in scientific research, taking account of priority areas for national and local Climate Action Plans, and issues emerging from the wider NDCA programme of engagement.

9.2.2.3 Communities of Practice

Drawing on a strong evidence base and best practice across Europe, the engagement campaign will enable peer-to-peer conversations about climate change – its causes, impacts and solutions – in workplaces and communities. It will support employers, membership associations and community organisations to tailor their own local communications around the needs and identity of their constituencies, and then build engagement within their own networks.

9.2.3 Education for Sustainable Development and Climate Literacy

The Second National Strategy on Education for Sustainable Development: ESD to 2030 provides a framework to steer and support the contribution that the education sector is making towards a sustainable future by 2030. Through a lifelong learning and whole of institution approach, the strategy seeks to place sustainability and inclusion at the heart of education, across teaching and learning, research, operational environments and engagement with local communities.

In 2024, actions will further embed learning for sustainability within curricula in schools and Further and Higher Education Institutions, supporting the development of green skills and climate literacy among learners. At post-primary level, a new Leaving Certificate subject in Climate Action and Sustainable Development will be introduced to enhance existing cross curricular content, and in Higher Education new climate/sustainability courses will be developed under Human Capital Initiative Pillar 3.

The annual National Forum on Education for Sustainable Development will engage stakeholders in dialogue on priority areas emerging in implementing ESD to 2030 and showcase and celebrate exemplars of quality, excellence and innovation in Education for Sustainable Development across the Irish Education System.

In 2024, work will continue with organisations delivering informal and nonformal education such as An Taisce Green Schools, GAA Green Clubs, ECO UNESCO Young Environmentalist and others which promote climate literacy by providing opportunities for young people across Ireland to take climate action and learn by doing.

9.2.4 Supporting Structures

9.2.4.1 Governance

The following structures will coordinate the activities, and provide oversight of the delivery, of the programme:

- The Department of the Taoiseach will develop, in collaboration with DECC, an all of Government climate communications campaign that will support the engagement campaign;
- DECC will oversee the design, implementation, and coordination of the public engagement programme under the NDCA, supporting Government Departments in rolling out their engagement activities to align with the communications activities at the sectoral, network, local and community levels;
- The Department of the Taoiseach and DECC will work together to deliver fully aligned and effective communications and engagement work programmes.

9.2.4.2 Monitoring and Evaluation

The delivery of the programme will be supported by the expansion of research and evidence gathering to allow for the effective monitoring and evaluation of the programme, and to provide detailed insights for climate policy across Government.

Social and Behavioural Research

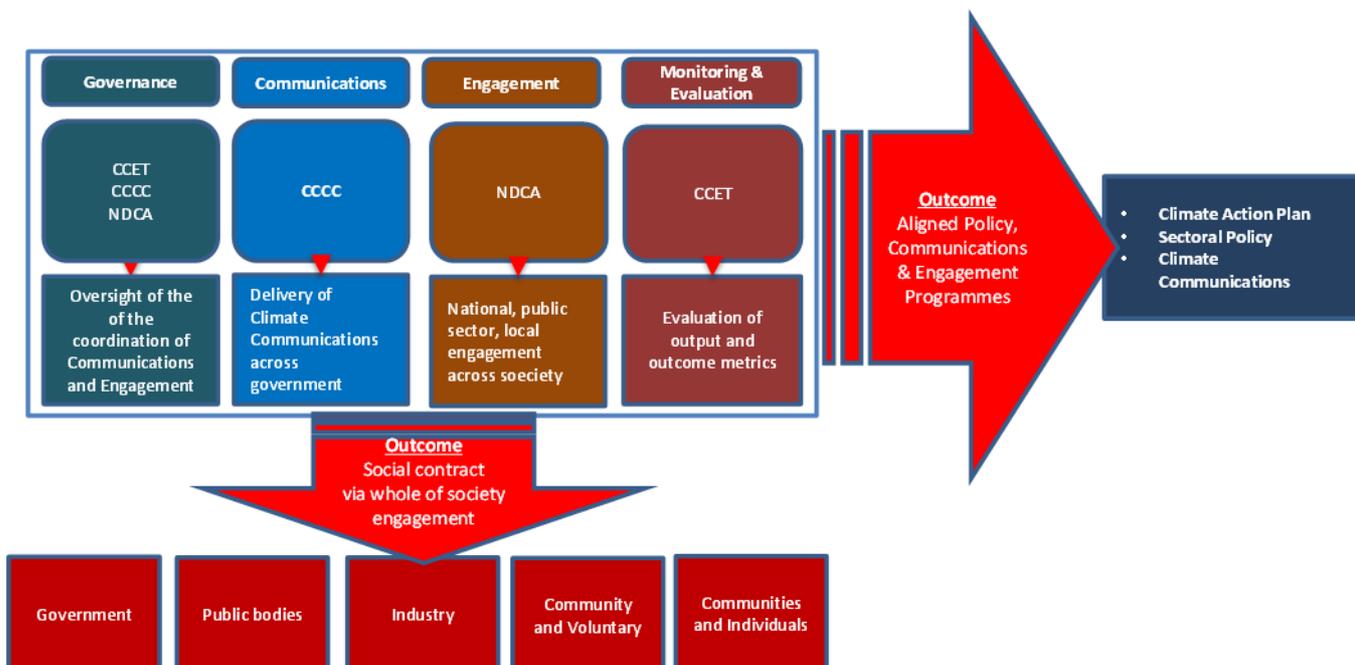
The delivery of the objectives of the NDCA will be measured through robust quantitative and qualitative research. In 2024, this will include the:

- The second *Climate Change in the Irish Minds* study;
- Climate Conversations 2024;
- An expansion of the behavioural research programme (to include research studies examining specific barriers to people taking climate action that have emerged from the existing research);
- A sentiment tracker;
- The expansion of the role of the Advisory Group on Social and Behavioural Research on Climate Action.

Data Management System

The *Roadmap of Climate Engagement Activities* will constitute a coordinated approach to the delivery of the *National Campaign of Communication and Engagement on Climate Action*. Based on the agreed roadmap, outputs, results, and impacts, with associated Key Performance Indicators (KPIs) will be defined, and a measurement system will be designed and implemented. Each engagement activity and campaign will be required to employ existing evidence provided by the NDCA programme in its design, including defining KPIs and agreed mechanisms for their measurement.

Box 9.2 – LOGIC Model to be guide the Monitoring and Evaluation of Citizen Engagement



The following are the key actions for monitoring and evaluation:

- Define KPIs, output (deliverables), result, and outcome (impact) measures;
- Consolidate research data to inform communications, engagement, and climate policy;
- Better understand the ‘say-do’ gap to empower individuals and communities of interest, via existing networks, to take climate action.

9.3 Impacts from a National Campaign of Communication and Engagement on Climate Action

The development and implementation of a national campaign will allow the Government to build an understanding of, and support for, climate action through informed communications, as set out in the *Communications Strategy*. Each of the three strategic goals below will be advanced:

9.3.1 Enhance Awareness and Understanding

We will:

- Improve climate awareness and literacy, countering misunderstanding;
- Facilitate a well-informed public discourse, clearly identifying key challenges and opportunities;
- Build a deeper understanding of climate impacts, and the best actions to address them;
- Communicate the wider benefits of climate action such as health/wellbeing, cost of living, and green jobs;
- Enable knowledge sharing and capacity building across Government and policymakers.

9.3.2 Build Support for Climate Action

We will:

- Encourage understanding of high-impact climate solutions through dialogue and consultation;
- Build local and national support for climate policy measures;
- Demonstrate Government leadership on climate;
- Co-create climate policy.

9.3.3 Empower People to Act

We will:

- Identify where people are acting, and where gaps in capacity exist;
- Promote available supports and identify targeted measures to support those most vulnerable;
- Encourage and support individual and collective climate action;
- Engage a critical mass nationally through cohesive and accessible campaigns and online resources.

In adopting this approach, the programme will have a strong action focus leveraging public, sectoral and regional involvement in delivering changes at system levels within relevant spheres of influence, while also promoting and enabling long-term behavioural change. This approach engages those already involved in climate action, enables those not yet engaged to get involved, and empowers those who are likely to be most affected by climate change to act. Cumulatively this supports the strengthening of a new social contract on climate action between the Government and the Irish people.

9.4 Actions

The actions in Table 9.1 below will be undertaken in support of Government policy on climate change. Where these actions are high-impact actions new to 2024, they are also included in the 2024 Annex of Actions. The 2024 actions that are within the Annex will be reported on quarterly by the Department of the Taoiseach.

Table 9.1 – Actions

Action Number	Action
CZ/24/1	Support climate literacy through formal education (primary and post-primary education)
CZ/24/2	Support climate literacy through formal education (higher education courses)
CZ/24/3	Deliver a system to measure output, result and outcome indicators for awareness, engagement, climate literacy and behavioural change
CZ/24/4	Deliver a new programme of social and behavioural research

CZ/24/5	Deliver the National Dialogue on Climate Action Engagement Programme
CZ/24/6	Deliver the Climate Conversations 2024

10. Public Sector Leading by Example

Key Messages

State of Play

The public sector drives far-reaching climate action through:

- Leadership and governance
- Circular economy and green public procurement

The public sector demonstrates leadership through:

- Efficient utilisation, decarbonisation, retrofitting, and improving the energy efficiency of public sector buildings
- Decarbonisation of public sector transport fleets

Current and Future Action

The public sector will:

- Strengthen climate action reporting
- Provide climate-related training and upskilling
- Develop a charging infrastructure for fleets
- Implement Green Public Procurement
- Scale up decarbonisation, retrofit, and the energy efficiency of public sector buildings

Expected Outcomes

By 2030, we will:

- Reduce greenhouse gas (GHG) emissions from the public sector by 51%
- Achieve a 50% improvement in energy efficiency in the public sector

By 2025, we will:

- Achieve the buildings and retrofitting targets laid out in the Public Sector Climate Action Mandate and in chapter 14 of this Climate Action Plan
- Implement and review the Public Sector Climate Action Mandate annually

10.1 State of Play

10.1.1. Role of the Public Sector

Public sector climate action policy has developed over successive Climate Action Plans since 2019. This has included the implementation of two public sector Climate Action Mandates and the publication of a dedicated Public Sector Climate Action Strategy. The public sector must take strategic ownership of climate action, fast-tracking the changes that we have to make. Moving in the right direction, we must capture lessons learned, adapt approaches, grapple with the scale of change, and act fast.

Emissions from public services decreased by 1.9% in 2022 compared to 2021 emissions, due to a decrease in natural gas and oil use in the public services sector⁵⁴. Emissions from public sector buildings are included under the Commercial Built Environment sectoral emissions ceiling⁵⁵.

Table 10.1 – Public Sector GHG Emissions, 2022⁵⁶

Total Emissions CO ₂ eq.	Public Sector Share of Total GHG Emissions	Public Sector Emissions CO ₂ eq.
60.76 Mt ⁵⁷	1.1%	0.668 Mt

⁵⁴ EPA Greenhouse gas emissions Commercial & public services: <https://www.epa.ie/our-services/monitoring--assessment/climate-change/ghg/commercial-and-public-services/>

⁵⁵ More detail in relation to the commercial and public sector buildings ceiling is available in Chapter 15: Built Environment.

⁵⁶ Figures in Table 10.1 are the "Public Services" figures from the EPA Inventory category 1.A.4.a. The source for Public Services emissions is the SEAI Energy Balance, specifically: Water Supply, Sewerage, and Waste Management (NACE 36-39); Public Administration (NACE 84); Education (NACE 85); and Health, Residential Care, and Social Work activities (NACE 86-88). Most of the emissions in 1.A.4.a are related to the heating of buildings. The following are not included: transport emissions related to public sector fleet (captured in the transport sector 1.A.3); and emissions associated with the generation of the electricity being used (captured in 1.A.1)

⁵⁷ Excluding LULUCF.

10.2 2025 and 2030 Key Performance Indicators

2025 and 2030 targets	
To meet the required level of emissions reduction we will:	
By 2025	<ul style="list-style-type: none">• Review the Public Sector Climate Action Mandate annually and update Climate Action Roadmaps in line with the updated mandate• Procure only zero-emissions vehicles unless the vehicle is exempt under the European Communities (Clean and Energy-Efficient Road Transport Vehicles) (Amendment) Regulations (S.I. 381 of 2021)• Act towards achieving our buildings and retrofitting targets⁵⁸
By 2030	<ul style="list-style-type: none">• Reduce GHG emissions from the sector by 51%• Improve energy efficiency in the public sector by 50%

Box 10.1 – Setting Public Sector Decarbonisation Targets

Approach to Target Setting for Public Sector Bodies

Nature of Target

Emissions reduction targets will be based on an absolute tonnage of GHG emissions. The total tonnage target will be a 51% reduction of direct energy-related emissions (thermal and transport consumption), plus projected supply side reductions in indirect energy-related emissions from electricity. These targets will evolve over time and change in line with Ireland's climate vision. The public sector should expect more ambitious targets in the coming years.

Application

The definition of public sector body for the purpose of tracking emissions is based on that used in S.I. No. 426/2014 – European Union (Energy Efficiency) Regulations 2014. This means that the

⁵⁸ See Chapter 15, Built Environment

energy targets apply to all public bodies that report under the Energy Efficiency Monitoring and Reporting (M&R) System.

An overall sectoral target of 51% will apply to the public sector. Each public sector body has a responsibility to reach this target. Progress towards the target is tracked at public body, and sectoral/Departmental group level through the Sustainable Energy Authority of Ireland (SEAI) Monitoring and Reporting (M&R) system. To ensure accountability, public sector bodies are assigned to a Departmental group. Departments are accountable for the performance of their sectoral group in relation to reaching the targets. Public bodies are accountable for their own performance. Most public sector bodies are part of the same group as their parent Department.⁵⁹ This is in line with existing governance structures.

Large Public Bodies

Requirements relating to large public bodies are applicable to:

- Organisations that consume over 50 GWh of energy per annum
- Homogenous sectors such as Schools, Health, Further and Higher Education, and the Civil Service

The planning of deep-retrofit building measures will be undertaken at sectoral level for homogenous sectors. For example, in relation to the Civil Service, the Office of Public Works (OPW) will plan the deep retrofit of Government Departments' building stock; the Department of Further and Higher Education, Research, Innovation and Science will plan for the further and higher education, research, innovation, and science building stock; the Department of Education will plan for the schools sector; and the Health Service Executive will plan for their health sector group.

Achievement of the Emissions Reduction Target

The emissions reduction target will be achieved through energy efficiency measures, electrification, demand reduction, and the use of on-site renewables (e.g., rooftop solar panels, and geothermal heat sources). Emissions reductions from purchasing energy from a “green” energy supplier, or using offsets, cannot be used to meet a public sector body's target.

Growth

If an increase in a public sector body's operations can be demonstrated to lead to a significant overall net economy-wide emissions reduction an “emissions recognition” can apply. An “emissions recognition” will apply only where the relevant projects have a wider societal benefit by reducing overall emissions. The net societal emissions savings must be additional.

⁵⁹ Some public bodies are part of more than one parent Department sectoral group (e.g., ETBs).

Approval must be given by the Minister for the Environment, Climate, and Communications for an “emissions recognition”. This will be dealt with on a case-by-case basis. A general approach to “emissions recognition” has been developed and will be piloted in the transport sector. SEAI will update its M&R methodology in order to take into consideration this “emissions recognition” and how it will operate.

Governance

The SEAI will support the capture of data using its M&R system and provide guidance and support to public sector bodies in reducing their emissions from energy use. Each public sector body will be required to:

- Individually report on their progress towards the targets
- Be part of a sectoral group, which includes a given Government Department and all public bodies under their aegis. Each public sector body will be assigned to the same sectoral group as they are in for energy efficiency target measurement. The key progress indicator for the public sector to meet its target will be the performance of the sectoral groups

SEAI Annual Report on Public Sector Decarbonisation and Energy Efficiency Performance

Public bodies are required to report annual energy data to the SEAI using their online national energy M&R system. The *2022 Annual Report on Public Sector Decarbonisation and Energy Efficiency Performance*, which reports on 2021 data, shows that the 345 public bodies and 2,898 schools who reported collectively improved their energy efficiency by 31.5% since 2009.

10.3 Measures to Deliver Target Impact

10.3.1 Public Sector Climate Action Mandate

The Public Sector Climate Action Mandate applies to all bodies covered by decarbonisation targets, except for Local Authorities, Commercial Semi-State Bodies, and the School Sector. The mandate highlights the main climate action objectives for public bodies and will be reviewed annually. All public sector bodies are encouraged to avail of the SEAI’s Partnership Programme, irrespective of whether the mandate applies or not. Support is available for implementing the mandate and for climate action more generally.

Box 10.2 – Public Sector Climate Action Mandate

1. Our Targets

1.1 Reduce energy related GHG emissions by 51% in 2030.⁶⁰

1.2 Improve energy efficiency in the public sector by 50% by 2030.

1.3 Update Climate Action Roadmaps annually within 6 months of the publication of the Climate Action Plan. Develop Climate Action Roadmaps if none are in place.

2. Our People

2.1 Establish and resource Green Teams, reporting to senior management, to become integrated drivers of sustainability in every public sector body.

2.2 Nominate a member of the Management Board as the Climate and Sustainability Champion with responsibility for implementing and reporting on the mandate.

2.3 Incorporate appropriate climate action and sustainability training (technical and behavioural, including green procurement training) into learning and development strategies for staff.

2.4 Organise staff workshops (at least annually) to engage on climate issues, including a focus on decreasing the organisation's carbon footprint.

2.5 Ensure all senior management (P.O. level or equivalent and above) and members of State Boards,⁶¹ complete a climate action leadership training course.

3. Our Way of Working

3.1 Report on the following in the Annual Report of the public sector body:

- GHG emissions;
- Implementation of the mandate;
- Sustainability activities;
- Compliance with Circular 1/2020: Procedures for offsetting the emissions associated with official air travel.

⁶⁰ Target related to energy-related emissions.

⁶¹ Members of state boards of state bodies that are subject to the Public Sector Climate Action Mandate.

3.2 Using SEAI's Public Sector M&R System, public bodies are to report annually on implementation of the individual mandate requirements using a "comply and explain" approach.

3.3 Achieve formal environmental certification for large public sector bodies, such as ISO 50001 (Energy Management Standard) or ISO 14001 (Environmental Management System), with a view to going beyond ISO 14001 to adopting Eco Management and Audit Scheme (EMAS). Specifically:

3.3.1 All public sector bodies with an energy spend greater than €2 million per annum to achieve ISO 50001 certification by end-2024;

3.3.2 All remaining public bodies to implement energy management programmes as per SEAI's energy management guidance (S.I. 426 of 2014) and report to SEAI annually on its M&R system.

3.4 *Green Public Procurement*

- Implement Green Public Procurement, using the EPA Green Public Procurement Guidance and criteria/Office of Government Procurement's online Green Public Procurement Criteria Search tool as resources.⁶²

3.5 *Construction*

3.5.1 Specify low carbon construction methods and low carbon cement material as far as practicable for directly procured or supported construction projects from 2023.

3.5.2 Adhere to the best practice guidelines for the preparation of Resource and Waste Management Plans for construction and demolition projects for directly procured or supported construction projects from 2024.⁶³

3.6 *Food Waste*

3.6.1 Measure and monitor the food waste generated on premises from 2024, using a standardised approach to food waste measurement set out in the EPA Protocol/Pathway.

3.6.2 All new contract arrangements related to canteen or food services, including events and conferences, to include measures that are targeted at addressing food waste, with a specific focus on food waste prevention and food waste segregation.

3.7 *Paper*

3.7.1 Review any paper-based processes and evaluate the possibilities for digitisation so it becomes the default approach. Eliminate paper-based processes as far as is practicable. Where paper must be procured, ensure that recycled paper is the default.

3.7.2 Measure and monitor paper consumption.

3.8 Water

- Provide suitable drinking water refill points for all staff and in any premises accessed by the public and measure and monitor usage of the refill points.

3.9 Single Use

- 3.9.1 Cease using disposable cups, plates and cutlery in any public sector canteen or closed facility, excluding clinical (i.e., non-canteen healthcare) environments, and in publicly funded advertising or broadcasting, where feasible.
- 3.9.2 Progressively eliminate all single use items within the organisation and from events organised, funded, or sponsored.

3.10 Other Materials

- 3.10.1 Support Ireland's Producer Responsibility Initiatives in the collection and recycling of products.⁶⁴
- 3.10.2 Use waste collection services that are segregated into a minimum of 3 streams – residual/general waste, recycling waste and organic/biowaste.

4. Our Buildings and Vehicles

4.1 Promote the use of bicycles (including push bikes, electric bikes, and cargo bikes) and shared mobility options as an alternative to car use among employees and visitors by creating and maintaining facilities (both inside and outside of buildings) that support such options, including secure and accessible bicycle parking, shared mobility parking, and charging stations, as appropriate, with a view to achieving the National Transport Authority's Smarter Travel Mark.

4.2 Phase out the use of parking in buildings that have access to a range of public transport services and active/shared mobility options for the majority of staff/visitors, while providing that sufficient accessible parking is maintained for those with physical mobility issues.

4.3 Display an up-to-date Display Energy Certificate in every public building that is open to the public to clearly show energy use.

⁶² GPP Guidance for the Public Sector: <https://www.epa.ie/publications/circular-economy/resources/green-public-procurement-guidance.php>. GPP Criteria Search: <https://gppcriteria.gov.ie/>

⁶³ EPA Best Practice Guidelines for the preparation of resource & waste management plans for construction and demolition projects: <https://www.epa.ie/publications/circular-economy/resources/CDWasteGuidelines.pdf>

⁶⁴ Extended Producer Responsibility (EPR): <https://www.gov.ie/en/publication/63441-extended-producer-responsibility/>

4.4 The public sector will not install heating systems that use fossil fuels after 2023, in (1) new buildings, and (2) “major renovation” retrofit projects as defined in the Energy Performance of Buildings Directive (EPBD) unless at least one of the following exceptions applies:

The fossil-fuel use is only through using electricity from the grid.

- There is no technically viable non-fossil alternative (generally only related to applications for a purpose other than space heating).
- The installation of a renewable space heating system would increase final CO2 emissions.
- The fossil-fuel use is provided for backup, peaking, or operational purposes (and makes up less than 10% of annual heating energy).
- Where the direct replacement of existing fossil fuel heating is required for an emergency maintenance purpose.

4.5. In relation to existing buildings:

4.5.1 Public sector bodies and sectoral groups with a large estate should commence a deep retrofit of at least one building in 2024 in pursuit of the 2030 51% emissions reduction target. The planning of deep-retrofit building measures will be undertaken at sectoral level for homogenous sectors, e.g., in relation to the Civil Service, the OPW will plan the deep retrofit of Government Departments’ building stock.

4.5.2 Public sector bodies and sectoral groups with a large estate should develop a portfolio building stock plan (including determining the buildings necessary for their activities), in line with guidance published by SEAI, by end 2024 to mobilise large scale programmes towards meeting the Climate Action Plan targets.

4.5.3 As part of the building stock plan, large public sector bodies and sectoral groups with a large estate should undertake data gathering and consider the long term (to 2050) retrofit key performance indicators to upgrade their building stock to Nearly Zero Energy Buildings or Zero Emission Buildings as outlined in the EPBD proposal and recast Energy Efficiency Directive.

4.5.4 Small public sector bodies should include a basic building stock analysis or statement as part of their Climate Action Roadmap, in line with the guidance published by SEAI.

4.6 Procure (purchase or lease) only zero-emissions vehicles from the end of 2022, enabling Ireland to go beyond the requirements of the EU Directive, amending Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles (EU Directive 2019/1161, the Clean Vehicle Directive) and act as an international leader in this area. An exception applies where the vehicle is exempt under European Communities (Clean and Energy-Efficient Road Transport Vehicles) (Amendment) Regulations (S.I. 381 of 2021).⁶⁵ Public sector procurement contracts for delivery and haulage should specify zero-emissions vehicles where possible.

4.6.1 As an enabler for the switch to zero-emissions vehicles and meeting Climate Action Plan targets, in 2024 public sector bodies with a vehicle fleet should develop a plan for installation of charging infrastructure in relevant locations. The plan should align installation of infrastructure with timelines for decarbonisation of the body's fleet. The plan should be included in the body's Climate Action Roadmap.

10.3.2. Reporting

Progress on the implementation of the mandate will be tracked through the SEAI M&R system using a “comply and explain” approach. Each public sector body's Climate and Sustainability Champion has responsibility for reporting annually on the mandate, which can be viewed as an opportunity and mechanism for public sector bodies to demonstrate the exemplar nature of their climate action measures.

10.3.3. Role of Energy Performance Officers

Since the 2017 Public Sector Energy Efficiency Strategy all public sector bodies are obliged to appoint an Energy Performance Officers (EPOs) from within their senior management team. EPOs lead on setting annual energy savings targets for their organisation, ensuring the implementation of required actions, as well as the timely and accurate reporting of data on the SEAI M&R system. The well-established EPO role remains in place and is a critical pillar in terms for the achievement of public sector energy efficiency and decarbonisation goals. The Public Sector Climate Action

⁶⁵ Major manufacturers have indicated their commitment to increasing the availability of e-trucks to the market by mid-decade. However, it is acknowledged that it may not be possible to procure the desired number or variety of zero emission heavy-duty vehicles until the second carbon budgetary period (2026-2030). Depending on market developments, public sector bodies should, at the least, ensure to procure (purchase or lease) 'Clean Vehicles,' in accordance with the EU Clean Vehicles Directive, to meet their heavy-duty vehicle targets.

Mandate requires the appointment of a Climate and Sustainability Champion for each public sector body. It is for each public body to decide if the Champion and EPO are the same or a different member of the senior management team.

10.3.4. Climate Action Roadmaps

Each public sector body to which the mandate applies, will develop a Climate Action Roadmap, setting out how it will deliver on its energy efficiency and emissions reduction targets. The SEAI and the EPA have published guidance for preparing roadmaps.

Alignment of Resource Efficiency Action Plans and Climate Action Roadmaps

Since 2019, all Government Departments are required to adopt and publish a Resource Efficiency Action Plan (REAP). The purpose of a REAP is to gather and monitor data on water, waste, materials, and energy use as well as efforts to reduce resource use, maximise recycling, and implement green measures in Departments. As there is significant overlap in the requirements for Government Departments under the Climate Action Roadmaps and REAPs obligations, from 2024 REAPs will be combined with the Public Sector Climate Action Roadmap. This will streamline planning and reporting for Government Departments.

Submission and publication of Climate Action Roadmaps

From 2024 onwards, all Climate Action Roadmaps should be published. More detail in relation to the preparation of climate action roadmaps will be available in the updated guidance to be produced by the SEAI and the EPA.

Box 10.3: Submission and Publication of Climate Action Roadmaps

Government Departments	Public Sector bodies
From 2024 onwards, Government Departments are required to submit their Climate Action Roadmaps to the Department of the Environment, Climate, and Communications, ⁶⁶ and to the Sustainable Energy Authority of Ireland.	Public sector bodies are required to submit their Climate Action Roadmaps to Climate and Sustainability Champions in parent Departments, and to the Sustainable Energy Authority of Ireland.

10.3.5. Reduce Your Use Campaign

The Reduce Your Use energy efficiency campaign is designed to target reductions in energy use. In 2023, all public sector bodies implemented and promoted energy saving actions, and the campaign will be continued over the 2023/24 winter period. There will be a focus on energy management action and impact evaluation and the implementation of building and operational control procedures that sustain energy savings through effective building management. The Reduce Your Use programme applies to all public sector bodies.

⁶⁶ Public Sector Roadmap Guidance 2024 will set out the arrangements for submission of Government Department Roadmaps to DECC.

Box 10.4 – Public Sector Climate Strategy, Mandate and Roadmaps

Climate Action Strategy	Climate Action Mandate	Climate Action Roadmaps
<p>The Public Sector Climate Action Strategy, published in March 2023, sets out the leadership and governance structures that are essential for the achievement of meaningful climate action in the public sector. It runs from 2023 to 2025 and supports the public sector to lead the way on climate action towards our 2030 targets.</p>	<p>To support public sector bodies leading by example, the Climate Action Mandate applies to all bodies covered by decarbonisation targets, except for Local Authorities, Commercial Semi-State Bodies, and the School Sector.</p> <p>The mandate highlights what public sector bodies must do and how they must prioritise their climate action.</p>	<p>The mandate requires that public sector bodies put in place a Climate Action Roadmap and update it annually.</p> <p>This roadmap is the path by which the public sector body will implement the mandate.</p> <p>Updated guidance is provided each year to support public sector bodies in developing their roadmaps.</p>

10.3.7. Public Sector Bodies to which the Public Sector Mandate does not apply

The public sector climate action mandate does not apply to Commercial Semi-State Bodies (CSB), the School Sector, or Local Authorities.⁶⁷

Commercial Semi-State Bodies

The Climate Action Framework for the Commercial Semi-State sector was introduced to assist each CSB with demonstrating its commitment to playing a leading role in assisting Ireland in meeting its climate ambitions. The framework was approved by

⁶⁷ Local authorities covered in chapter 19 of the Climate Action Plan.

Government in July 2022. In 2023, NewERA provided the Department of the Environment, Climate and Communications (DECC) with the first of its biannual monitoring reports, setting out implementation progress to date. The report notes a high level of adoption of the framework and its commitments. On behalf of the Minister for the Environment, Climate and Communications, NewERA intends to prepare guidance, where useful, and facilitate knowledge sharing workshops with CSBs and other key stakeholders, in relation to the implementation of certain framework commitments.

School Sector

The first School Sector Climate Action Mandate was published in 2023 and will be reviewed and published annually.⁶⁸ The School Sector Technical Climate Action Roadmap 2023 to 2030 was also published in 2023.⁶⁹ This sets out a trajectory and details the programmes that will contribute to 2030 and 2050 targets. The School Energy Retrofit Pathfinder Programme has already retrofitted 53 schools across Ireland, with work on an additional 11 schools currently underway. This programme is paving the way for a much larger national programme for the decarbonisation of schools built prior to 2008.

10.3.8. Capacity of the Public Sector to Deliver Climate Action

Due to the critical but complex nature of climate action, particularly on a whole of Government basis, it is imperative that the public sector has the ability to undertake such action. In 2022, the Climate Action Delivery Board (CADB) requested that a review be undertaken to assess the capacity and capability of the Civil Service to address the challenges of climate change and deliver on the Government's policy responses to it. The Institute of Public Administration was contracted by the Department of Public Expenditure, NDP Delivery and Reform to undertake the independent review. Throughout late 2022 and 2023, this included reviewing international best practice in this area and conducting in-depth interviews and focus groups with participation across all Government Departments, various Government Agencies, the Climate Change Advisory Council, research institutions, and local government to collate their experiences and ideas for improvement.

⁶⁸ [School Sector Climate Action Mandate: https://www.gov.ie/en/publication/a1673-school-sector-climate-action-mandate/](https://www.gov.ie/en/publication/a1673-school-sector-climate-action-mandate/)

⁶⁹ [School Sector Technical Climate Action Roadmap 2023 – 2030; https://www.gov.ie/en/publication/4b730-school-sector-technical-climate-action-roadmap-2023-to-2030/](https://www.gov.ie/en/publication/4b730-school-sector-technical-climate-action-roadmap-2023-to-2030/)

The final recommendations from this review are for presentation to the CADB for consideration, with a view to pursuing the implementation of relevant recommendations in 2024. The output of this piece of work aims to identify any gaps in Civil (and wider Public) Service capacity and capability so that effective and meaningful climate action policies can be developed and implemented across all sectors.

Building Capacity through Climate Action Training

Guidance was issued by the DECC in 2023 in relation to the provision of climate action leadership training for senior grades in Government Departments and public sector bodies. DECC will continue to work with OneLearning to develop centralised climate training available to civil servants of all grades to be rolled out in 2024.

10.3.9. Circular Economy and Green Public Procurement

The *Whole of Government Circular Economy Strategy* was published in December 2021. A key objective is to promote public sector leadership in adopting circular economy policies and practices. The public sector must be a driving force for Ireland's move to a circular economy, characterised by behaviours and business models that reduce consumption; design-out waste; ensure resource recycling; and deliver sustainable economic growth. Green Public Procurement (GPP) policies will play a vital part in reducing our global carbon impact and protecting our natural resources and the environment.

GPP is acknowledged as a vital policy lever in meeting environmental policy objectives. In Ireland public bodies spend an estimated €18.5 billion a year on goods, services and works. This provides Ireland's public sector with significant influence to stimulate and actively encourage the provision of more resource-efficient, low carbon, less polluting goods, services and works across the public sector. A new Green Public Procurement Strategy and Action Plan is currently being prepared and is expected to be finalised and published in early Q1 2024.

10.3.10. Ambitious Cross-cutting Decarbonisation

Retrofitting and Improving the Energy Efficiency of Public Sector Buildings

There are between 12,500 and 13,700 buildings in the public sector, including approximately 4,000 schools in the school sector and 1,000 buildings in the

commercial semi-State sector. Buildings account for 44-50%⁷⁰ of the energy consumed by the public sector and almost half of total energy-related GHG emissions.

Analysis of data for 2021⁷¹ reported to SEAI by 345 public bodies and 2,898 schools (representing 99% of the energy consumption of the sector) shows combined total primary energy consumption was 9,787 GWh, and total energy related GHGs were 1,782 KtCO₂. Non-electricity GHG emissions had decreased by 2.7% from the greenhouse gas baseline, while total emissions had decreased by 14.1%. SEAI supports retrofitting and improving the energy efficiency and decarbonisation of public buildings.

Decarbonisation of Public Sector Fleet

Emissions from transport account for about 30% of the public sector's overall GHG emissions, the second largest portion after buildings. Electrifying the vehicle fleets of public sector organisations⁷² – those that are used for the performance of the functions of that organisation – and encouraging more sustainable commuting and business-related travel by public sector employees are key elements of public sector transport decarbonisation.

DECC and the Department of Transport have engaged with the SEAI in relation to the treatment of “emissions recognition” with respect to public sector 2030 GHG emissions reduction targets in the context of transport services. The framework for determining if a societal emissions reduction project(s) is/are eligible for recognition has been explored. The process for calculating GHG emission reductions from eligible projects is being developed by the SEAI in collaboration with DECC and in consultation with the Department of Transport. The processes by which public sector bodies can apply for an “emissions recognition” of a project(s) and for calculating wider societal GHG emissions reduction will be piloted in the transport sector.

10.3.11. Financing and Funding

The Climate Action Plan should represent the best possible value for money consistent with the sustainable management of the public finances. Estimation of the costs and

⁷⁰ SEAI Annual Report on Public Sector Energy Performance, section 3.3.

⁷¹ SEAI Public Sector Results: <https://www.seai.ie/business-and-public-sector/public-sector/monitoring-and-reporting/public-sector-results/>

⁷² Public transport decarbonisation (e.g., bus, taxi, and rail), is dealt with in Chapter 16: Transport.

effects of measures under consideration should, therefore, form a core element of each Department's work on annual updates to the Climate Action Plan. Furthermore, this work should be integrated with the annual budget cycle, so knowledge of the costs and value for money of proposed actions can feed into Department's financial planning and prioritisation for the year ahead, in line with agreed allocations.

Analysis and modelling of costs and emissions reductions should begin in Q2 each year and be used to inform the identification, selection, and continuation of measures within each sector, to ensure that the updated Climate Action Plan brought to Government allows for our emissions targets to be met in a way that is both cost effective and financially sustainable.

The National Development Plan sets out funding allocations over the period of 2021 to 2030 of €165 billion that will support climate action. This will bring public investment to over 5 per cent of GNI*, well above the EU average of 3 per cent of GDP. It is up to the Departments in receipt of these funds to identify the policies and measures that maximise the impact of this planned investment on the achievement of climate targets and determining the appropriate balance and mix of expenditures in their sector. Public sector bodies are also encouraged to look at all available funding options to achieve climate action targets, including, where appropriate, Public Private Partnerships and/or Energy Performance Contracts, or borrowing within approved limits.

Funding for climate action needs to be integrated into overall budgetary frameworks across public sector programmes. This will ensure that the goals that have been set are supported by robust, realistic, and cost-effective resourcing plans that can accommodate the trade-offs that inevitably arise in the context of budgetary and other wider economic constraints that may exist.

10.4 Actions

The actions in Table 10.2 below will be undertaken in support of Government policy on climate change. Where these actions are high-impact actions new to 2024, they are also included in the 2024 Annex of Actions. The 2024 actions that are within the Annex will be reported on quarterly by the Department of the Taoiseach.

Table 10.2 – Actions

Action Number	Action
PS/24/1	Update Climate Action Roadmap guidance in line with the annual Climate Action Mandate
PS/24/2	Build out of M&R system to integrate self-reporting on the mandate
PS/24/3	Develop standardised approach for energy-related scope 1, 2 and 3 emissions monitoring and reporting, including identifying those emissions already included in the Irish inventory (limited to Ireland's national emissions inventory)
PS/24/4	Develop a standardised approach for non-energy-related scope 1, 2 and 3 emissions monitoring and reporting, including identifying those emissions already included in the Irish inventory
PS/24/5	Monitor implementation of commitments in Commercial Semi-State Climate Action Framework and report to DECC on a biannual basis
PS/24/6	Prepare guidance documentation, and facilitate knowledge sharing workshops, on implementation of the Commercial Semi-State Climate Action Framework
PS/24/7	Roll-out of centralised climate-related training and upskilling for all Civil Service grades
PS/24/8	Undertake an annual survey of public sector climate literacy
PS/24/9	Implement new GPP Strategy and Action Plan

11. Carbon Pricing and Cross-Cutting Policies

Key Messages

State of Play

- Policies on spatial planning, taxation, sustainable finance, and non-financial reporting have a key role to play in supporting and enabling the delivery of emissions reductions across multiple sectors and in mobilising climate finance, facilitating a just transition to a carbon neutral society

Current and Future Action

- Continue the trajectory of carbon tax increases as legislated for in the 2020 Finance Act until the carbon tax rate reaches €100/tonne and redistribute the carbon tax income in a socially fair manner
- Support companies in their compliance with the new Corporate Sustainability Reporting Directive
- Mobilise public and private investment for climate action
- Promote the development of a sustainable and climate resilient financial system
- Ensure the National Planning Framework guides the implementation of all relevant policies at national, regional, and local levels
- Promote digital transformation and sustainable remote working practices

Expected Outcomes

- Pricing signals through carbon and other environmental taxation will continue to drive changes in household and business behaviour and investments towards low carbon alternatives
- Public investment will be complemented by, and work to mobilise, private investment across the economy towards meeting our sectoral emissions ceilings
- Reform and evolution of the financial system will promote sustainable outcomes
- National Planning Framework objectives will support climate policy implementation

11.1 State of Play

For the actions and targets set out in this Climate Action plan to achieve the Government's sectoral emissions ceilings, key cross-cutting policies at national level will provide a broad, supportive, national policy framework to promote the transition to a climate neutral society. Government policies on taxation, expenditure, sustainable finance, spatial planning, digital transformation, and the bioeconomy provide an important enabling framework for individual, household, community, and company-level climate action. These policies also act as enablers for a wide range of other Government policies and activities within individual sectors.

11.2 Measures to Deliver Cross-cutting Policy Objectives

11.2.1 Environmental Taxation and Carbon Pricing

Taxation policy can play a central role in encouraging the changes necessary to reduce our greenhouse gas (GHG) emissions and to support additional environmental benefits. According to *Climate Conversations 2022*, the majority of people think carbon pricing and taxation are important in delivering climate action.⁷³ We are committed to having in place a taxation framework that plays its part in incentivising, along with other available policy levers, the necessary actions to reduce our emissions. There are already a number of environmentally progressive elements to Ireland's taxation regime:

- A carbon tax, in place since 2010, that is one of the most broadly-based carbon taxation systems in the world. Legislation is in place to increase the annual rate of carbon tax until at least 2030. Government policy is to ringfence additional carbon tax receipts for a range of measures, including funding a socially progressive retrofit programme; targeted social welfare measures; and supports to incentivise farming in a more sustainable way;
- A suite of taxation incentives to promote the uptake of electric vehicles, including substantial Vehicle Registration Tax (VRT) relief and Benefit-in-Kind (BIK) exemptions;
- A carbon dioxide emissions-based VRT and motor tax regime for private motor cars that imposes a higher tax liability on vehicles with higher emissions.

⁷³Climate Conversations 2022 Summary Report, available at: [243537_f901a445-ff28-4fd5-9d36-a58c6a717bdd.pdf](https://www.climateaction.ie/243537_f901a445-ff28-4fd5-9d36-a58c6a717bdd.pdf)

We are committed to regularly reviewing key direct and indirect environmental tax measures to assess their potential to further support our decarbonisation objectives, including:

- Examining the introduction of an emissions-based tax regime for light goods vehicles;
- Examining gradually phasing out VAT rebates on commercial fuel use where electric alternatives exist;
- Examining the gradual equalisation of the diesel and petrol excise rates;
- Reviewing the environmental criteria, which were introduced to the vehicle BIK regime in 2023;
- Supporting the use of accelerated capital allowances to promote investment in energy efficient equipment and zero-emissions commercial vehicles;
- Assessing the role for taxation measures, in meeting our building retrofit targets set out in this plan.

11.2.1.1 Emissions Trading System

In 2023 agreement was reached on a number of important reforms to the EU Emissions Trading System, including:

- Updates to the existing Emissions Trading System (EU ETS) to reduce industry and aviation emissions and expand its scope to include the maritime sector;
- The introduction of a new EU ETS II for the built environment and transport sectors, and additional industrial sectors not already covered by the existing EU ETS;
- The introduction of a new Social Climate Fund to help address any potential adverse effects of ETS II on the most vulnerable transport users and householders in society;
- The establishment of a unique Carbon Border Adjustment Mechanism (CBAM) in order to avoid carbon leakage in intensive industrial activities.

11.2.1.2 Shadow Price of Carbon

The Infrastructure Guidelines are the set of rules the Government uses to evaluate the consequences of the capital investment decisions it faces and include the rules for carrying out economic appraisal. According to these rules, each cost benefit analysis is required to incorporate a quantitative assessment of the net impact the proposal will have on GHG emissions. These emissions are then priced according to a schedule of values that are based on the estimated marginal cost society will incur to reach specific climate targets.

In 2019, the Department of Public Expenditure, NDP Delivery and Reform (DPENDR) tripled the price of carbon that is applied in the guidelines. This re-appraisal of the cost of carbon was based on the estimated costs associated with achieving a 30% reduction in GHG emissions by 2030. As the Government's climate ambitions have been considerably strengthened in line with our National Climate Objective, the price will be updated to reflect this enhanced ambition, as committed to in the National Development Plan (NDP) review.

At DPENDR's request, the Marine and Renewable Energy Institute in University College Cork has carried out the analysis needed to inform the update to the shadow price of carbon, in consultation with the Department of the Environment, Climate and Communications. The update will ensure we are pricing emissions appropriately in economic appraisals and that the values in the Infrastructure Guidelines align with our climate targets.

In addition, the NDP review committed DPENDR to reviewing certain elements of the Infrastructure Guidelines to ensure climate considerations are adequately incorporated. The aim of this work is to improve the Government's understanding of the impacts that investment decisions have on the wider environment and climate. As part of this programme of work, DPENDR has been working with the OECD, funded by the EU Commission's Technical Support Instrument, on two aspects of public capital expenditure appraisal requirements in Ireland:

- The model for assessing the emissions impact of infrastructure investment;
- The appraisal of investments that may be vulnerable to the impacts of climate change.

The OECD published their report on *Strengthening Environmental Considerations in Public Investment Management in Ireland*⁷⁴ in July 2023. DPENDR will evaluate the OECD's recommendations before considering what changes may be appropriate for the new Infrastructure Guidelines.

Over the longer term, as set out in the NDP review, DPENDR will examine the role the Infrastructure Guidelines can play in the achievement of broader environmental objectives and in support of the national commitment to achieving net zero GHG emissions by 2050.

11.2.2 Mobilisation of Investment for Climate Action

11.2.2.1 Project Ireland 2040 Funds

The four Project Ireland 2040 funds, comprising the Climate Action Fund, Disruptive Technologies Innovation Fund, the Urban Regeneration and Development Fund, and the Rural Regeneration and Development Fund, have a collective budget of an estimated €4 billion to 2027. Each of the four funds will continue to promote investments for climate action within the scope of its mandate.

The Climate Action Fund will continue to fund projects and initiatives that contribute to the achievement of Ireland's climate and energy targets in a cost-effective manner, which, in the absence of support from the fund, would not otherwise be developed. Projects spanning the electricity, heat, transport, and agriculture sectors, with both an urban and rural focus, have already been approved for funding of up to €77 million under the first call from this fund, leveraging a total investment of over €300 million. In 2022, the Minister for the Environment, Climate and Communications announced 18 successful applicants under Strand 1 of the Community Climate Action Programme, and 14 successful projects (including sustainable travel and solar PV projects) under Creative Climate Action, amounting to €6 million. In 2023, a further 43 successful recipients of the €5.8 million Creative Climate Action Fund II – Agents for Change were announced.

In January 2023, the Minister for Housing, Local Government and Heritage launched a new €150 million scheme from the Urban Regeneration and Development Fund for

⁷⁴ OECD (2023), "Strengthening environmental considerations in public investment in Ireland: Assessment and recommendations", *OECD Public Governance Policy Papers*, No. 35, OECD Publishing, Paris, <https://doi.org/10.1787/83b97aca-en>.

vacancy projects as part of the *Vacant Homes Action Plan*. The fund is available to Local Authorities to acquire vacant or derelict properties or sites and carry out the necessary works to make them more attractive for re-use or re-sale. *Housing for All* committed to incorporating activation of vacant properties as a key criterion in the Urban Regeneration and Development Fund.

11.2.2.2 Infrastructure, Climate and Nature Fund

Government recently agreed to establish new mechanisms to save windfall corporation tax receipts in a way that mitigates future economic, demographic and environmental risks. Part of this approach is the establishment of a €14 billion Infrastructure, Climate and Nature Fund (ICNF). The ICNF will support two goals. Firstly, in the event of an economic downturn, the fund will be deployed to support the continued delivery of the NDP. This would include the delivery of critical climate projects such as the National Retrofit Plan, the National Sustainable Mobility Policy and major public transport infrastructure. Secondly, in the event that the economy continues to perform well, up to €3.15 billion of the fund will be made available for the delivery of projects that demonstrate support for the achievement of climate, nature and water quality targets.

The establishment of the ICNF represents a clear understanding by Government that investing in climate mitigation to modernise our economy is a prudent course of action. In addition to boosting the attractiveness of Ireland as a destination for foreign direct investment, it will help Ireland avoid direct compliance costs that would otherwise be imposed under EU law.

11.2.2.3 Green Budgeting and Climate-related Budgetary Expenditure

Ireland is committed to the implementation of a series of progressive green budgeting reforms to better embed climate and environmental goals within the budgetary process, with a view to improving outcomes. To support these reforms, Ireland joined the OECD Paris Collaborative on Green Budgeting and participates in the Coalition of Finance Ministers for Climate Action.

As part of Budget 2022, the Department of Finance published a review of green budgeting from a tax perspective. This publication represents a first-stage analysis of tax-related green budgeting, a process which can be expected to develop over time and help inform other areas of the Department's climate analysis. As part of Budget 2024, the Department undertook an updated green budgeting analysis, accounting for

the latest available data, which was published as part of the *Beyond GDP – Quality of Life Assessment*.⁷⁵

Reporting on green expenditures has been progressed through the inclusion of material in each year's budgetary documentation. In particular, the Revised Estimates Volume provides detailed programme by programme allocations on expenditure that the Government has deemed to be climate related.

The next phase of reform will focus on broadening the coverage of green budgeting to all areas of public spending and to align this with the existing performance and equality budgeting framework. On performance budgeting, Ireland is benefiting from the experience and expertise of the OECD who are leading a project to improve the systems used to tag and trace expenditure and measure performance against a range of metrics.

To inform the public and policy makers about measures that are helping or hindering progress towards our climate targets, DPENDR are currently developing definitions to identify, track and report on Government spending that may be having a negative impact on climate and environmental outcomes. Assessing spending that may be having a negative impact on climate and environmental outcomes will be informed by the ex-post assessment of fossil fuel and similar subsidies conducted by the Central Statistics Office and international best practice. We will also publish supporting information on methodologies used to arrive at our assessments.

As the first step in this process, in February 2023, DPENDR published a review of fossil fuel subsidies and other potentially climate harmful supports.⁷⁶ The focus of the paper centred on the Exchequer supports made available through voted expenditure in the Revised Estimates Volumes 2023. The outputs of the review will be included in DPENDR's green budgeting work. More detailed identification and tracking of climate related Government expenditure, both favourable and unfavourable, will be included in future iterations of the Revised Estimates Volume, starting with 2024, to help inform budgetary allocation decisions.

Building on the work of the Department of Finance's green budgeting publications, new research examining *the Potential Fiscal Impacts of the transition to a lower carbon economy in Ireland*, was published this year.⁷⁷ This new research finds that current environmental taxes are an important source of revenue for the State. At present,

⁷⁵ Available at: <https://www.gov.ie/en/publication/7097e-budget-2024-beyond-gdp-quality-of-life-assessment/>

⁷⁶ [9111558c-d0b6-4623-8862-ec16111dd8ba.pdf](https://www.gov.ie/en/publication/9111558c-d0b6-4623-8862-ec16111dd8ba.pdf) (www.gov.ie)

⁷⁷ See: [The 'Potential Fiscal Impacts of the transition to a lower carbon economy in Ireland.'](#) – Department of Finance July 2023.

environmental taxes contribute approximately €5.3 billion annually or around 6.4% of overall Exchequer tax revenue in 2022. This proportion in relative terms has, however, dropped from close to 11% of overall Exchequer tax revenue in 2012 and, over the next seven years, the transition to a lower carbon economy will have a significant impact on Exchequer finances. If current taxation policy remains unchanged, and if the necessary actions as set out in Climate Action Plan 2023 are implemented to bring about the appropriate levels of emissions reductions, projected estimates point to a potential overall fall in Exchequer revenues over the medium term. Exchequer revenues raised by way of taxes on fossil fuels, including transportation, are estimated to fall over the medium term by around €1 billion, from around €5.3 billion in 2022 to around €4.3 billion in 2030. While this potential reduction in Exchequer tax revenues may seem relatively small in absolute terms, over the medium term it would mean environmental taxes could fall from around 2.1% of domestic economic growth (or GNI*) in 2022, to around 1.4% of GNI* in 2030. These falls in Exchequer revenue are based on expected changes in individuals and businesses adapting their behaviour to use less fossil fuels and fewer fossil fuel vehicles over the medium-term (between 2023 to 2030).

As the economy moves towards lower carbon use over the medium term, policy will need to consider how to use taxation as an instrument in the transition. In particular, policy makers will need to consider and decide how to protect current Exchequer revenue streams in an environmentally appropriate fashion, alongside influencing and encouraging behavioural change in order to achieve decarbonisation over the medium term, and carbon neutrality by no later than 2050. Against this background, policy formulation must also recognise that public finances in Ireland will come under increasing pressure from factors other than climate change, such as population ageing and other demographic changes. While it is important to understand that changes to taxation by itself cannot achieve the necessary GHG emissions reductions, as the transition to a lower carbon economy is an economy-wide problem, taxation has nonetheless an important role to play.

11.2.2.4 Mobilising Private Sector Investment

The low-carbon transition will require significant private investment alongside Exchequer expenditure on a sustained basis over a number of decades. This investment will cover a range of activities:

- Developing disruptive innovations;

- Expanding new types of infrastructure, including clean sources of energy;
- Adapting existing infrastructures, such as retrofitting homes and offices to make them more energy efficient.

In order to meet the targets and objectives of this Climate Action Plan, it is necessary to direct the private sector towards financing the necessary investments. We are taking the lead in developing innovative approaches to financing our decarbonisation objectives and are committed, for example, to rolling out a low-cost residential retrofit loan scheme. To meet the scale of this challenge, the financial sector will also need to bring innovative solutions to the market.

Through the commercial State sector and other Public Bodies, we will seek to leverage the significant volumes of private sector capital that is available for well-structured projects, including wind (both onshore and offshore) and solar electricity generation, interconnection, and major transport infrastructure.

NewERA will continue to work with the commercial State companies, the Ireland Strategic Investment Fund, the Strategic Banking Corporation of Ireland, and other Public Bodies, to identify priority opportunities in key sectors to mobilise private investment towards assisting in meeting our climate objectives.

The European Investment Bank (EIB), as the financing arm of the EU, is one of the world's main financiers of climate action and environmental sustainability. The EIB is supporting Ireland's transition to a low carbon, energy efficient, sustainable economy with investments in sectors, including public infrastructure, transport, housing, and renewable energy, among others. The EIB provides around €1 billion per annum in financing and investments to Ireland, with a target of 50% of this figure to be dedicated to climate action and environmental sustainability that aligns with the goals of the Paris Agreement in support of the EU's aim to be carbon neutral by 2050. Underscoring the bank's commitment to supporting the climate transition in EU Member States, in November 2023 the EIB and the Government signed an agreement that paves the way for a new €500 million low cost retrofit loan scheme which will be administered by the Strategic Banking Corporation of Ireland.

11.2.2.5 Promoting a Sustainable Financial System

Under forthcoming and existing EU rules, financial institutions, when they are funding the acquisition of assets, will be required to understand the climate resilience of assets

and the sustainability of the technology they are investing in, as well as other climate vulnerabilities their assets might face.

The new EU Corporate Sustainability Reporting Directive (CSRD) puts sustainability reporting on the same footing as traditional financial reporting and will require companies, inter alia, to report sustainability standards on a 'double materiality' basis meaning companies must disclose the risks their activities pose to the environment and people, as well as the potential risks their companies may face in a changing climate. The CSRD will be mandatory for:

- Public interest entities currently within the scope of EU non-financial reporting rules that have greater than 500 employees as of 1 January 2024;
- Other larger companies and public interest entities with greater than 250 employees as of 1 January 2025;
- Listed small and medium-sized enterprises as of 1 January 2026, with an 'opt out' possible until 2028;
- Large subsidiaries and branches of non-EU companies with a net turnover of €150 million in the EU as of 1 January 2028.

To support the financial system in directing essential investments into climate action, the EU has developed a science-based taxonomy as the gold standard for sustainable activities. This aims to scale up sustainable investment, both to underpin the ambitions of the European Green Deal and to support the achievement of Member States' own climate action objectives. It provides a consistent, science-based, classification framework to companies, investors, and policymakers, through which economic activities can be considered environmentally sustainable, and sets out the requirements that must be met by each activity for it to be sustainable. Requirements for climate adaptation and mitigation are already in force, with requirements for other environmental objectives expected to enter into force in January 2024.

The Central Bank of Ireland continues to work closely with European Supervisory Authorities to develop supervision of climate risks and to mobilise capital for green and low-carbon investments. The Central Bank is also a member of the Network for Greening the Financial System and, by directly engaging with financial service providers, is focussed on climate and environmental risks being assessed for banks and insurers, as well as investment firms and intermediaries.

Since the launch by the National Treasury Management Agency (NTMA) of Ireland's first sovereign green bond (ISGB) in 2018, a total of €10.8 billion of proceeds have been allocated to eligible green projects. These proceeds are governed by a Green Bond Framework which commits Ireland to allocate monies equivalent to the proceeds raised in accordance with the International Capital Market Association standard.

Examples of the types of projects which receive allocations include retrofit programmes, investment in public transport, and flood relief schemes. A second ISGB was issued in January 2023, for a nominal value of €3.5 billion, with the allocations applied in accordance with the framework. The NTMA intends to continue to develop the market for ISGBs.

Given the increase in regulatory focus, and increasing appetite for sustainable and green products, it is crucial to develop the necessary skills and leadership capacity, and to advance environment, social and governance best practices across Ireland's financial services sector in order to promote and develop a sustainable financial system that will facilitate increased investment in zero-emissions technologies. The Sustainable Finance Skillnet, as part of Skillnet Ireland, will continue to support the upskilling of Ireland's financial services sector.

11.2.3 Spatial and Planning Policy

The planning system plays an integral role in meeting the National Climate Objective and having a vertically integrated policy framework that supports the actions in this Climate Action Plan is critical. From a national planning policy perspective, the National Planning Framework (NPF) provides an established means through which to implement and integrate climate change objectives, including adaptation, at national, regional, and local levels, and the transition to a low carbon and climate resilient society. The NPF clearly states that "in addition to legally binding targets agreed at EU level, it is a national objective for Ireland to transition to be a competitive low carbon, economy by the year 2050".

The NPF sits at the top of the planning hierarchy and provides the overarching context for the regional and local tiers below it, thereby securing the alignment of policies and objectives as part of the plan-making process, including alignment with the Climate Action Plan.

At present, the NPF integrates our national climate objectives via the following National Policy Objectives:

- National Policy Objective 53 – Support the circular and bioeconomy including through greater efficiency in land management, greater use of renewable resources and by reducing the rate of land use change from urban sprawl and new development;
- National Planning Objective 54 – Reduce our carbon footprint by integrating climate action into the planning system in support of national targets for climate mitigation policy and adaptation objectives, as well as targets for GHG emissions reductions;
- National Policy Objective 55 – Promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a low carbon economy by 2050;
- National Policy Objective 56 – Sustainably manage waste generation, investing in different types of waste treatment and support circular economy principles, prioritising prevention, reuse, recycling, and recovery, to support a healthy environment, economy and society.

The Government approved the commencement of the process to revise the NPF and publish the roadmap for this first revision in 2023⁷⁸. The roadmap identifies climate action as one of the key drivers for consideration as part of the revision process, having regard to policy and legislative changes since 2018. The first revision of the NPF can provide further opportunities to integrate specific policies that further the national climate objective.

The three Regional Spatial and Economic Strategies for each Regional Assembly area, sitting at the tier below the NPF, also contain a range of policy objectives in order to ensure emissions can be reduced and targets met, and these feed directly into Development Plans at the more local level. At this level, national and regional climate objectives (including energy) are given effect through specific policies and objectives that reflect the local context. Section 10(2)(n) of our Planning and Development Act, 2000 (as amended) specifically identifies Climate Action (adaptation and mitigation) as a mandatory objective to be included in all Development Plans. Adopted by the elected members of the Local Authority, these plans are subject to a review and evaluation by the Office of the Planning Regulator to ensure consistency with national policy and guidance. The role of Local Authorities in climate action is explored further in chapter 19.

⁷⁸ <https://www.gov.ie/en/publication/deef6-a-road-map-for-the-first-revision-of-the-national-planning-framework/>

11.2.4 Digital Transformation

Harnessing Digital – The Digital Ireland Framework, launched in February 2022, reflects Ireland's ambition to continue to be a digital leader at the heart of European and global digital developments. It is helping to drive the digital transition across our economy and society, and it complements work towards achieving Ireland's climate targets, with our green and digital ambitions re-enforcing each other. The strategy sets out targets, high-level workstreams and deliverables across four dimensions, in line with the EU's Digital Decade 2030: Digital Transformation of Business; Skills; Digital Infrastructure; and the Digitalisation of Public Services.

Significant progress has been achieved to date across the digital inclusion agenda, including a new Enterprise Digital Advisory Forum, an €85 million Digital Transition Fund to help companies on their digital journey, a continuing focus on digital skills, including the Digital Strategy for Schools, and the Adult Literacy for Life Strategy, a new Digital Connectivity Strategy to 2030; and the formal establishment of Coimisiún na Meán in March 2023.

The ambitions of *Harnessing Digital* will also be underpinned by the National Broadband Plan, which will deliver high-speed broadband services to over 1.1 million people in areas where there is no existing or planned commercial network. The plan's intervention area includes almost 560,000 premises, approximately 100,000 farms and businesses, and 679 schools.

The Government will also continue to support remote working through its *Making Remote Work: National Remote Work Strategy* as part of its wider commitment to increased participation in the labour market; more balanced regional development; improved work/life balance; reduced commuting times; and reduced transport-related carbon emissions.

11.2.5 The Bioeconomy

Our bioeconomy is a powerful enabling tool which can address the key challenges that the climate transition poses while providing sustainable sources of proteins; bioactivities; energy; biobased fertiliser; locally sourced feed for our animals; nature-based building materials; and many other innovative sustainable products that displace fossil fuels, while ensuring both the continued success of our agri-food, marine,

industry and forestry sectors and contributing to our emissions reduction targets and the development of a circular economy.

Supporting our bioeconomy offers us the potential to modernise industries and sectors through innovation while minimising and managing the impact on our climate or environment, as often these new bio-based solutions can course-correct previously harmful practices. The bioeconomy seeks to do more with less, it seeks to cascade the use of our biological resources for higher value diversification opportunities, and harness waste and natural capital sustainably, displacing the use of fossil-based, fossil-reliant, or non-renewable products.

The bioeconomy has been fully embraced at national and EU levels through the *National Policy Statement on the Bioeconomy 2018* and through the EU Bioeconomy Strategy. These strategies aim to accelerate the development of a sustainable European bioeconomy market, which will aid in the delivery of the Sustainable Development Goals while also assisting in the delivery of goals outlined in the Paris Climate Accords and the European Green Deal transformation. A new national *Bioeconomy Action Plan 2023-2025* has recently been adopted by Government, representing a key step in achieving the vision outlined in the *National Policy Statement on the Bioeconomy*. Climate Action Plan 2024 will progress its implementation through increased public and stakeholder understanding and awareness of the bioeconomy, and biobased innovation and solutions, and through the development of guidelines and the launch of a call, developing further opportunities for the bioeconomy.

11.3 Actions

The actions in Table 11.1 below will be undertaken in support of Government policy on climate change. Where these actions are high-impact actions new to 2024, they are also included in the 2024 Annex of Actions. The 2024 actions that are within the Annex will be reported on quarterly by the Department of the Taoiseach.

Table 11.1 – Actions

Action Number	Action
CP/24/1	Monitor and review the carbon tax increases as legislated in the 2020 Finance Act and other environment related taxation reform

CP/24/2	Publish Green Budgeting Analysis on tax and tax expenditure
CP/24/3	Publish Green Budgeting Analysis on expenditure allocations

12. Electricity

Key Messages

Sectoral Emission Ceilings

- Carbon Budget 1 (2021-2025): 40 MtCO₂eq.
- Carbon Budget 2 (2026-2030): 20 MtCO₂eq.
- Emissions Abatement (on 2018): -75% (3 MtCO₂eq. per annum by 2030)
- Emissions up to the end of 2022: 19.7 MtCO₂eq.

Trends in the Sector

In 2022, renewable generation accounted for 38.6% of electricity, an increase from 35% in 2021. Electricity emissions decreased by 2% in 2022 which is attributable to an increase in renewable generation, coupled with reductions in coal, fuel oil, and peat use for electricity generation. Following a decrease of 8.9% in natural gas use in 2021, there was an increase of 12.6% year-on-year in 2022. According to the Sustainable Energy Authority of Ireland (SEAI), Ireland's electricity emissions in the first half of 2023 were 16.7% lower than for the same period in 2022. In the first half of 2023, renewables accounted for 43% of electricity generated, an increase of 0.9 percentage points on the first half of the previous year.

The electricity sector continues to face an immense challenge in meeting its requirements under the sectoral emissions ceiling, as the decarbonisation of other sectors, including transport, heating, and industry, relies to a significant degree on electrification. The deployment rates of renewable energy and grid infrastructure required to meet the carbon budget programme for electricity is unprecedented and requires urgent action across all actors to align with the national targets.

Key Targets

National Target	2025	2030
Renewable Electricity Share	50%	80%
Onshore Wind	6 GW	9 GW
Solar	Up to 5 GW	8 GW
Offshore Wind	-	At least 5 GW
New Flexible Gas Plant	-	At least 2 GW
Demand Side Flexibility	15-20%	20-30%

Measures and Actions

Transformational policies, measures and actions, and societal change are required to increase the deployment of renewable energy generation, strengthen the electricity grid, and meet the demand and flexibility needs required for the challenges of:

- Increasing renewable generation to supply 80% of demand by 2030 through the accelerated expansion of onshore wind and solar energy generation, developing offshore renewable generation, and delivering additional grid infrastructure
- Developing micro- and small-scale generation, as well as community projects, through actions such as grant funding and enabling small-scale production to participate in energy markets
- Transforming the flexibility of the electricity system by improving system services and increasing storage capacity
- Developing tools and mechanisms that support demand side flexibility services which leverage smart metering, including market incentives and smart tariffs, reducing/removing regulatory barriers, and focusing on flexibility-ready standards for smart technology
- Delivery of at least 2 GWs of new flexible gas-fired generation

12.1 State of Play

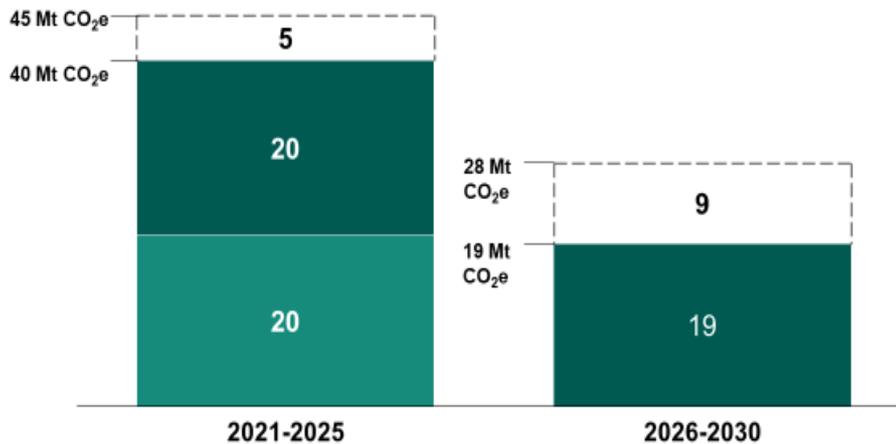
12.1.1 Stocktake of Abatement Progress to Date and Corrective Actions Required

The electricity sector has a ceiling of 40 MtCO₂eq. for the first carbon budgetary period (2021-2025). The Environmental Protection Agency's (EPA) National Inventory Report for 2022 shows that 49% of the first carbon budget has been used in the first two years. To meet the first carbon budget the electricity sector requires a decarbonisation rate of 17.3% per annum in the period 2023-2025. For context, the decarbonisation rate between 2018 and 2022 was 1.4% per annum.

Figure 12.1 – Electricity Sector Emissions Relative to the Sectoral Emission Ceilings and EPA’s ‘WAM’ Scenario Projections⁷⁹

FIGURE MAY NOT SUM DUE TO ROUNDING

Electricity sector SEC 2021-2025 and 2026-2030 and projected emissions in WAM scenario, Mt CO₂e



■ WAM emissions

■ Emissions remaining under SEC

■ Emissions used under SEC

- The electricity sector has SECs of **40 and 19 Mt CO₂e** for periods 2021-25 and 2026-30 respectively
- ~ **20 Mt CO₂e** of the electricity 2021-2025 SEC were used in 2021-22, leaving ~**20 Mt CO₂e remaining for 2023-25**
- **EPA WAM** projects electricity emissions to be **5 Mt CO₂e above** the electricity SEC for 2021-25 and **9 Mt CO₂e** for 2026-30

Sources: Climate Action Plan 2023 (Govt of Ireland, December 2022); Ireland’s Greenhouse Gas Emissions Projections (EPA, June 2023)

2

The EPA project that the electricity sector emissions are currently not aligned to CAP 23’s pathways and targets. The EPA projections forecast an overshoot of ~5.2 MtCO₂eq. in the period 2021 to 2025 and ~8.2 MtCO₂eq. in the period 2026 to 2030.

When identifying actions for the decarbonisation of the electricity sector in CAP 23, it was noted that infrastructural actions would first be needed to reinforce and transform the electricity grid and develop new sources of renewable energy, such as wind farms. These initial infrastructural actions would have a less immediate impact on emissions in the sector but would facilitate increasing reductions in emissions at latter end of the two carbon

The EPA projects that the electricity sector emissions are currently not aligned to Climate Action Plan 2023 (CAP23) pathways and targets. The projections forecast an overshoot of ~5.2 MtCO₂eq. in the period 2021 to 2025, and ~8.2 MtCO₂eq. in the period 2026 to 2030.

⁷⁹ A more detailed graphic regarding the Electricity sector’s emissions relative to Sectoral Emission Ceilings and EPA projections is available in Appendix 1

As referenced in chapter 2, some measures included within this chapter were not included in the EPA projections. The deployment of all the measures within this chapter are required for Ireland to meet its carbon budget requirements for the electricity sector.

The Climate Change Advisory Council has made a number of recommendations for actions in the electricity sector in particular around the need for laws to ensure access to information from smart meters, private wire connections, phase-out of coal use, storage, demand management, and the need to streamline the planning process for wind farms. Work on these areas has been progressing since the publication of CAP 23 and these recommendations have been taken into consideration in this chapter.

12.1.1.1 Progress on Key Performance Indicators from CAP 23

Work on achieving the Key Performance Indicators (KPIs) identified in CAP 23 has been ongoing over 2023, including:

Accelerate Renewable Electricity Generation

- The Department of the Environment, Climate and Communications (DECC) delivered the first Offshore Renewable Electricity Support Scheme (ORESS) Auction in May 2023;
- DECC delivered the third Renewable Electricity Support Scheme (RESS) Auction held in September 2023;
- EirGrid published an update to Shaping Our Electricity Future to align with CAP23 and the carbon budget programme in July 2023;
- A National Hydrogen Strategy was published in July 2023;
- The Commission for the Regulation of Utilities (CRU) published its Decision on a Pilot for Renewable Hubs in November 2023;
- The Offshore Wind Delivery Taskforce developing a system-wide plan for delivery Offshore Wind in Ireland;
- There was a consultation on Electricity Private Wires in August 2023.

Accelerate Grid Flexibility

- Interconnection Policy published in July 2023;

- Implementation Plan for Future Arrangements for System Services Consultation Paper published in June 2023.

Manage Electricity Demand Growth

- ESB Networks published their platform roadmap for the provision of a suite of tools and supports for community participation in flexibility measures.

12.1.2 Emissions Profile to Date

Considerable progress has been made in decarbonising the electricity sector, resulting in electricity emissions falling by 45% between 2001 and 2022. This was possible through the deployment of renewables and their successful integration into the electricity grid, as well as the increased use of higher efficiency gas turbines. 2021 and 2022 have seen increases in emissions of 1.4-1.5 million tonnes when compared to 2020, as 2021 saw both a “low wind” yield and a number of outages of the lower-carbon intensity gas-fired generators, resulting in an increase in the use of coal and oil. This highlights the need to diversify our renewable electricity generation sources and increase our gas-fired generation capacity.

With over 300 onshore wind farms now generating clean energy across the country, Ireland is in the top five globally for both installed wind power capacity per capita and the contribution of wind energy to electricity demand, making us a world leader in the integration of variable renewable electricity onto the grid.

We have seen a significant reduction in the use of high-intensity carbon fuels for electricity generation. The deployment of renewable electricity generation over the last two decades has enabled emissions reductions even as demand increased. Electricity accounted for just 14.4% of Ireland’s greenhouse gas (GHG) emissions in 2022. Since 2018 our electricity emissions per capita have reduced to around the EU average, further reflecting our use of renewable electricity.

Table 12.1 – Latest GHG Emissions

Sector Emissions MtCO ₂ eq.	Share of Total GHG Emissions	Emissions tCO ₂ per capita
9.77	14.4%	1.98

Table 12.2 – Trends in GHG Emissions

Timeframe	Percentage Change	Absolute Change MtCO₂eq.
2018-22	-5.39%	-0.56

There has been a significant increase in the share of renewable electricity generation between 2005 and 2022 – from 7% to 38.6% in 2022. In absolute terms the electricity generated from renewable electricity increased from 1.8 TWh to 12.6 TWh in 2021. The estimated volume of carbon dioxide avoided using renewable energy reached a peak in 2020 before decreasing slightly to 6.2 MtCO₂eq. in 2021. Emissions from electricity generation had decreased year-on-year from 2016 to 2020, but 2021 and 2022 has seen increases in emissions of 1.4-1.5 million tonnes when compared to 2020. The return to using more carbon intensive fuel along with less renewables has played a big part in this trend, as well as an increasing demand for electricity. The increase in electricity generation emissions in 2021 and 2022 can be attributed to a series of unconnected factors. Due to the hiatus between the conclusion of the REFIT Scheme and the introduction of the RESS, 2020 saw no new renewable generation projects being connected to the grid. Following this, 2021 saw a number of outages in the gas-fired generators, while also being a “low wind” yield year. Finally, the Russian invasion of Ukraine in 2022 led to an increase in the cost of gas on the international markets. These factors, combined, resulted in higher carbon-intensive coal-fired generation capacity being used more than in previous years. The experience of 2021 and 2022 further highlights the need to increase the development of renewable generation capacity in Ireland.

12.1.3 The Scale of the Challenge

The electricity sector has a ceiling of 40 MtCO₂eq. for the first carbon budgetary period (2021-2025), equating to an average of 8 MtCO₂eq. per annum.

At a time when the energy system is under severe pressure to ensure security of supply, amid projections of rapid electricity demand growth over the coming decade, the electricity sector has been set one of the smallest carbon budget allocations and the steepest trajectory (-75%) across all sectors. The scale of the challenge to meet the sectoral emissions ceiling is immense and requires policies to be moved from an ‘end of decade’ target trajectory towards a ‘remaining carbon budget’ target.

Ireland is at the forefront of global efforts to harness the enormous potential of renewable energy. The IPCC in their most recent assessment report has singled out wind and solar power as, by far, being the most cost-effective technologies to keep the planet on track to staying within 1.5 degrees temperature increase. A renewables led system is the core of Ireland's plan to radically reduce emissions in the electricity sector and protect our energy security through the use of indigenous energy as enshrined in the Government's recently launched Energy Security Package⁸⁰.

Transformational policies, measures, and actions, along with societal change, are required to meet the electricity sector's sectoral emissions ceiling. During the second carbon budget period, as the necessary infrastructure and projects come online, we will start to realise Ireland's enormous potential for offshore wind. In the meantime, to facilitate the major acceleration and increase in onshore wind turbines and solar PV required nationwide to achieve our national and regional targets, a previously unseen level of electricity network upgrades and construction will be required.

For onshore renewables, greater alignment between national, regional and local plans and renewable energy targets to support investment in and delivery of onshore wind and solar renewable energy is also critical in this context.

Rapid delivery of flexible gas generation is needed at scale and in a timeframe to replace emissions from coal and oil generation as soon as possible to reduce impacts on the carbon budgets. The introduction of renewable gas generation into the grid is an important factor of ensuring a security of supply for Ireland's electricity system.

A continued drive for solar energy, with an ambitious target of up to 5 GW by 2025, will support land-use diversification and enable farmers and communities to participate in the energy transition. Maximising the self-consumption of renewable electricity will reduce costs and selling surplus electricity to the grid will allow for the diversification of income.

The potential use of brownfield sites, infrastructure corridors for renewables, renewable hubs, energy parks and multi-activity sites, off-grid solutions, existing wind farm connections, and private wires, could open-up the potential for solar energy to supply a growing amount of Ireland's electricity demand and offset emissions from fossil fuels, and should be explored, where feasible. The development of hybrid connections to the grid could also open the potential for more rapid deployment of renewable energy

⁸⁰ <https://www.gov.ie/en/publication/5c499-energy-security-in-ireland-to-2030/>

generation in particular through co-locating solar energy projects with existing wind farms.

All of these investments are necessary for an electricity system that is expected to accommodate even higher levels of renewable energy from offshore wind during the third carbon budget period. The scale, investment, and capacity required to deliver it should not be underestimated.

12.2 Sectoral Ceiling and Carbon Budgets

The electricity sector has a ceiling of 40 MtCO₂eq. for the first budget period (2021-2025), equating to an average of 8 MtCO₂eq. per annum. With emissions of 9.98 MtCO₂eq. in 2021 and 9.77 MtCO₂eq. in 2022, the electricity sector will need to achieve average annual emissions of circa 6.8 MtCO₂eq. from 2023 to 2025.

Table 12.3 – Required Level of Decarbonisation for Carbon Budgets 1 and 2

Sectoral Carbon Budget 2021 to 2025 MtCO ₂ eq.	Cumulative Emissions to 2022	Remaining Sectoral Carbon Budget 2023 to 2025 MtCO ₂ eq.	Sectoral Carbon Budget 2026 to 2030 MtCO ₂ eq.
40	19.75	20.3	20

Table 12.4 – Required Level of Decarbonisation for Sector

2018 Emissions MtCO ₂ eq.	Indicative Target for 2025 Emissions MtCO ₂ eq.	Indicative Target % Reduction for 2025	2022 Emissions MtCO ₂ eq.	% Increase (+) / Reduction (-) to date
10.1	6	40%	9.7	-5.4

12.3 Emissions Projections for Electricity

In November 2023, the SEAI published their annual energy projections⁸¹. Key conclusions for the electricity sector include:

⁸¹ <https://www.seai.ie/publications/National-Energy-Projections-2023.pdf>

- Significant progress has been made to date when it comes to decarbonising our electricity system, with the **carbon intensity of electricity from the grid decreasing by over 50%** between 2005 and 2020;
- In all modelled scenarios presented in this chapter, variable renewables are the largest input to electricity generation by 2030, with a sharp increase anticipated later in this decade due to assumed connection of large offshore wind projects;
- The **deployment of renewables needs to outpace the growth in energy demand** for it to deliver the absolute reductions in GHG emissions required. Therefore, the timing of the delivery of the renewable energy generation relative to the scale and pace of growth in electricity demand is a critical factor.

Analysis from the SEAI to support the electricity measures set out in this Climate Action Plan shows that:

- It will be extremely challenging to meet the electricity emissions ceilings for carbon budget periods 1 and 2.
- Delivery and integration of onshore and offshore wind and solar PV is the best-performing mitigation measure to deliver emissions abatement at scale and at speed. Already under the first Climate Action Plan in 2019, reaching 70% renewables by 2030 provided the core of emissions reduction in the sector. Increasing renewables to 80% of demand under Climate Action Plan 2021 and beyond this to the CAP23 capacity targets of 22 GW of wind and solar achieves a further 16% emissions reductions over the first two carbon budgets. No other supply side measure comes close to the emissions abatement achieved by the early and rapid deployment of unprecedented wind and solar capacity.
- Achieving the CAP 23 renewable energy capacity of 9 GW of onshore wind, 8 GW of solar and 5 GW of offshore wind can deliver circa **10 Mt** of emissions abatement reduction over the first two carbon budgetary periods. Only the reduction of electricity demand to an extent that would drastically undermine Ireland's long term economic development, society, and public welfare would be capable of the level of emissions reduction that solar PV, onshore and offshore wind can provide.

Accelerating Indigenous Renewables to reduce Emissions and bolster Energy Security

Given that the programme of large-scale offshore wind deployment is expected to be realised towards end decade, deployment rates for onshore renewables will need to increase to match demand growth to ensure we keep electricity emissions within range of the carbon budgets.

This requires a major upscaling and accelerating in current deployment of renewables, particularly onshore wind.

As an example, the historical average deployment of onshore wind installed capacity connected between 2008 and 2020 inclusive was ~280 MW per annum from 19 projects (with an annual maximum of 612 MW). To achieve the necessary emissions abatement, an approximately eight-times increase of renewable energy deployment to **2.3 GW annually** would be needed between **2024 and 2030**.

Achieving these deployment rates requires accelerating across the three pillars of renewables delivery – grid, planning, and route to market. **Delivery of the electricity network and supporting grid connection policy** need to urgently align to support the rapid roll out of renewables. As importantly, **greater alignment between local plans and renewable energy targets at national and regional level** to support investment in and delivery of onshore wind and solar renewable energy is also critical.

The ongoing revision of the **National Planning Framework, the Renewable Electricity Spatial Planning Framework** and the implementation of the recast **Renewable Energy Directive, including the mapping of Renewable Acceleration Areas**, will support these.

Finally, a supportive investment climate for renewables in Ireland is essential through the flagship **Renewable Electricity Support Scheme** and the Accelerating Renewable Electricity Taskforce. Grid delivery and a supportive planning framework are both critical drivers of the investment needed in the sector as Ireland is competing for international capital and in securing supply chains as global efforts to scale up renewables intensify. Factors that lead to lower renewables deployment rates increase the risk that the electricity emissions will be out of range of the carbon budget programme with implications for future carbon budget periods and other sectors.

Government is overseeing a phased approach to offshore wind development. **The Offshore Wind Delivery Taskforce** has been established to drive delivery and capture the wider and longer-term economic and business opportunities associated with the development of offshore renewables in Ireland.

To deliver on the roadmap for renewables set out in CAP23, **the Accelerating Renewable Electricity Taskforce** has been established to coordinate the fast-track and increased deployment and output of renewable electricity generation and supporting technologies in the near-term.

Notwithstanding the above, the scale of projected electricity demand growth means that the delivery and integration of the renewables programme alone does not deliver required levels of emissions reduction. Net Zero demand growth and calibrating renewable energy with demand will need to be pursued as a matter of urgency as a part of a longer-term decarbonisation pathway for the sector including for the third carbon budget.

12.4 2025 and 2030 KPIs

The KPIs are set out in Table 12.5.

Table 12.5 – Key Metrics to Deliver Abatement in Electricity⁸²

Theme	2025 KPI	2025 abatement (vs. 2018) MtCO ₂ eq.	2030 KPI	2030 abatement (vs. 2018) MtCO ₂ eq.	2031-2035 measures
Accelerate Renewable Energy Generation⁸³	<p>50% renewable electricity share of demand</p> <p>6 GW onshore wind capacity</p> <p>Up to 5 GW solar PV capacity, including at least 1 GW of new non-utility solar</p>	2.21	<p>80% renewable electricity share of demand</p> <p>9 GW onshore wind capacity At least 5 GW offshore wind capacity</p> <p>8 GW solar PV capacity, including 2.5 GW of new non-utility solar</p> <p>Green hydrogen production from renewable electricity surplus generation</p>	7.18	<p>Decarbonisation Roadmap for a net-zero power system</p> <p>Green hydrogen production via 2 GW offshore wind</p>
Accelerate Flexibility	<p>Maximum level of renewables at any one time on the grid: 85%</p> <p>Dispatch down (excluding surplus generation) of renewables below 7%</p>	See above abatement figure	<p>Maximum level of renewables at any one time on the grid: 95-100%</p> <p>Dispatch down (excluding surplus generation) of renewables below 7%</p> <p>Minimise surplus generation</p>	See above abatement figure	<p>Required additional long duration storage technologies in place</p> <p>Increased zero emission gas-fired generation to enable a net zero power system</p>

⁸² For CAP24 new modelling was undertaken to underpin the Electricity chapter, the current abatement figures are based on the latest modelling

⁸³ The abatement figures here represent the total figure for all three themes

	<p>Minimise surplus generation</p> <p>Required long term storage (4 hour plus) in place</p>		<p>Required additional long-term storage (4 hour plus) in place</p> <p>At least 2 GW of new flexible gas-fired generation</p> <p>Zero-emission gas-fired generation from biomethane and hydrogen commencing by 2030</p>		
Demand Management	<p>Demand side flexibility 15-20%</p> <p>Zero carbon demand growth</p>		<p>Demand side flexibility 20-30%</p> <p>Zero carbon demand growth</p>		<p>Demand side flexibility 30%</p> <p>Zero carbon demand growth</p>
Total Estimated Abatement Potential		2.21		7.18	

12.4.1 Measures to Meet the Challenge

Achieving further emissions reductions between now and 2030 requires a major step up across three key measures:

- Accelerate and increase the deployment of **renewable energy** to replace fossil fuels;
- Deliver a **flexible system** to support renewables and demand;
- Manage **demand**.

12.4.1.1 Accelerate Renewable Electricity Generation

To reach 80% of electricity demand from renewable sources by 2030:

- Accelerate the delivery of utility-scale onshore wind, offshore wind, and solar projects through a competitive framework;
- Develop non-utility scale generation and community projects through actions such as grant funding and enabling such projects to participate in energy markets and flexibility schemes;
- Target 6 GW of onshore wind and up to 5 GW of solar by 2025;
- Target 9 GW of onshore wind, 8 GW of solar, and at least 5 GW of offshore wind by 2030;
- All new or repowered renewable electricity generation projects shall implement a Community Benefit Fund equivalent to the RESS requirements of €2/MWh;
- Most fundamentally, significant investment is needed in the transmission and distribution systems to maximise the usage of renewable electricity and to reduce constraints and congestion on the system. System Operators and the CRU must ensure the timely investment in, and delivery of, the required electricity network infrastructure, including key priorities such as the North South Interconnector, to meet the targets set out in this, and subsequent, Climate Action Plans;
- Deliver a streamlined electricity generation grid connection policy and process, and remove barriers, where possible, for the installation of renewables and flexible technologies reducing the need to build new grid, including hybrid (wind/solar/storage) connections;
- Publish a new Electricity Generation Grid Connection Policy;

- Undertake a public consultation on proposed regional renewable electricity targets, including relevant environmental assessments in the upcoming draft National Planning Framework revision;
- Provide for greater alignment between local plans and renewable energy targets at national (and regional) levels, taking into account regional targets once established and the revised National Planning Framework;
- Publish the Draft Renewable Electricity Spatial Policy Framework White Paper;
- Publish the revised methodology for Local Authorities Renewable Energy Strategies;
- Publish Draft Revised Wind Energy Development Guidelines;
- Commence drafting of Solar Energy Development Guidelines;
- Following finalisation of a Regional Roadmap, Regional Assemblies will publish and implement Regional Renewable Electricity Strategies, enabling a unified methodology for national and regional spatial and capacity targets, identifying areas suitable for renewable electricity deployment at regional and county levels that can inform the statutory planning process;
- Following adoption of the Regional Renewable Electricity Strategies, Local Authorities will include a statement within their next Local Authority Climate Action Plan which identifies the methods or processes that will be used to implement the required policy supports to achieve renewable electricity targets;
- In line with transposing the revised Renewable Energy Directive, which entered into force in November 2023, ensure that the permit-granting procedure, the planning, construction and operation of renewable energy plants, the connection of such plants to the grid, the related grid itself, and storage assets are presumed as being in the overriding public interest;⁸⁴
- Map and designate Renewable Acceleration Areas for onshore renewables as required following transposition of the revised Renewable Energy Directive once the relevant provisions have been transposed into Irish law;
- Ensure that Local Authorities, An Bord Pleanála, and the Maritime Area Regulatory Authority have sufficient and appropriate expertise and resources to meet the State's needs in this area;
- All relevant public bodies will carry out their functions in a manner which supports the achievement of the renewable electricity targets, including, but not

⁸⁴ The revised RED (RED III) sets an overall European renewable energy target of at least 42.5% by 2030. There will be an 18-month period to transpose most of the Directive's provisions into national law, with a shorter deadline of July 2024 for some provisions related to permitting for renewables.

limited to, the use of road and rail infrastructure to provide a route for grid infrastructure where this is the optimal solution;

- Deliver the Small-scale Renewable Electricity Support Scheme to support non-domestic renewable electricity generators above 50 kW, and community energy and small and medium-sized enterprises' projects up to 6 MW;
- Target 1.6 GW of installed micro-generation capacity (≤ 50 kW) by 2030;
- Production of 2 GW of renewable hydrogen sourced from offshore wind to be in development by 2030, which will help to provide greater certainty for investors, and create the production scales needed to enable greater infrastructure deployment.

12.4.1.2 Deliver, Accelerate and Manage a Flexible System to Support Renewables

Accelerate Grid Flexibility

- Empower business and households by developing clear public information regarding electricity carbon intensity in real time and promote opportunities to shift demand to times of low carbon intensity;
- Delivery of 2 GW of new flexible gas-fired power generation;
- Phase out and end the use of coal and peat in electricity generation;
- System Operators to transform the flexibility of the electricity system through changes to policies, standards, services, and tools, funded and incentivised through regulatory price controls;
- As an urgent priority, establish the investment framework and competitive market arrangements needed to deliver zero carbon system services;
- Deliver at least three new electricity transmission grid connections or interconnectors;
- Explore further interconnection potential, including hybrid interconnectors;
- Publish the Electricity Storage Policy which will support the further deployment of electricity storage in Ireland, including longer term storage;
- Increase deployment of medium to long-term storage technologies;
- Undertake dispatch reform aimed at improving the efficiency of Transmission System Operators dispatch actions.

12.4.1.3 Manage Electricity Demand Growth

- The overarching objective of managing electricity demand growth is to ensure, through a combination of energy efficiency and flexible electricity demand, that economic growth can be supported by low-carbon or no-carbon energy demand growth;
- Ensure that 15-20% of the electricity system demand is flexible by 2025, increasing to 20-30% by 2030, to reduce the peak demand and shift the demand to times of high renewable output;
- Deliver a demand side strategy that facilitates zero carbon demand, incentivises low carbon electricity consumption, and aligns with EU energy efficiency requirements, while facilitating electrification targets;
- The demand side strategy should accelerate the rollout of local flexibility markets by the Distribution System Operator, as required to meet renewable electricity and carbon abatement targets, and contain measures to incentivise Large Energy Users to increase the flexibility in their electricity demand;
- Publish a regulatory decision on dynamic green electricity tariffs;
- Enable and encourage domestic customers, businesses, and communities to participate in demand flexibility services;
- Enable and encourage customers to participate in wholesale and system services markets as a matter of urgency. Local balancing of flexible demand and renewable generation will contribute to an increase in renewable electricity usage and a reduction in carbon emissions.

12.4 Citizen Engagement

Climate Conversations are a core component of the annual National Dialogue on Climate Action. Across Ireland 4,300 people were engaged through the online consultation, in addition to public participation network workshops. The results showed that there is a clear public desire for Government to proceed faster on bringing onstream more sources of renewable electricity.

Of the participants surveyed, 86% viewed Government investment in renewable electricity as “very important”. Energy security was another important theme with more than half (53%) of the public “very concerned” about the issue. People also asked for more funding for community energy schemes, and improved consultation with local communities concerning wind and solar installation.

The SEAI recently commissioned a national survey of the attitudes of people who live near to 50 new commercial solar or wind farm projects in Ireland.⁸⁵ The survey forms part of a long-term study to understand the effects of Government policies under the RESS on the public's support for Ireland's energy transition. In 2022, surveyors conducted in-person interviews on the doorstep across rural Ireland. They surveyed 1,764 households. This included 1,116 households within 5 kms of a new commercial wind or solar project sites, of which 219 live within 1 km of a project site. Key findings from the survey are:

- Most households close to new wind or solar power projects have positive attitudes to the project close to them;
- Across rural Ireland, general levels of support for wind and solar energy projects remain very high, regardless of whether people live close to new projects or far away;
- A large majority of the public living in rural areas supports Government policies that secure financial benefits for households and communities close to new renewable energy infrastructure projects through "Community Benefit Funds";
- Most people feel like they and their communities can have a say in the planning process. However, many still feel that more effort should be made with community engagement and careful siting of projects.

The survey results align with increasing levels of benefits to communities from local indigenous renewable energy projects. Countryside access, walking, recreational routes, heritage development, viewing points, education centres, biodiversity initiatives and other pro-active measures at wind and solar farms are helping to successfully integrate the facilities with the wider community. For example, in addition to a public sensory garden and outdoor gym, Bord Na Móna's Mount Lucas Wind Farm has over 10 kms of public walkway-cycleway, has welcomed in excess of 215,000 visitors since it first opened, and is utilised by local schools, sports and athletics clubs, and society groups.

⁸⁵ <https://www.seai.ie/publications/SEAI-RESS-National-Survey.pdf>

12.5 Just Transition

Box 12.1 – Just Transition



Integrated, Structured, Evidence-based Approach

A key feature of the Renewable Electricity Support Scheme (RESS) and Offshore Renewable Electricity Support Scheme (ORESS) is that all projects must establish a Community Benefit Fund (CBF) to be used for the wider economic, environmental, social, and cultural well-being of the local community. The fund, one of the most generous community benefit schemes in the world, is designed to incentivise investment in local renewable energy, energy efficiency measures and climate action initiatives.

The Right Skills

The RESS Good Practice Principles Handbook for CBFs provides guidance and recommendations in relation to good practice for setting up and administering CBFs. Good practice should ensure there is successful operation and delivery of the funds, as well as provide clarity and transparency as to how CBFs are being allocated across communities.

Equitable Impact

CBFs are intended to enable the local community to share in the benefits of renewable electricity generation. The amount payable by RESS projects into the fund is mandated at €2 per megawatt hour of generation of the RESS Project. This means there are real and quantifiable funds being made available annually for the benefit of the local community.

Dialogue

Community participation in fund decision making for the allocation of funds is built into the CBF. Communities provide volunteers to sit on fund committee projects. This ensures their participation in the decision making on RESS projects.

12.6 Actions

Table 12.6 included in this chapter sets out the sector specific roadmap of actions to 2025 that will support the delivery of Ireland's carbon budgets and sectoral emissions ceilings. Table 12.7 sets out all actions for delivery in 2024. Where these actions are high-impact actions new to 2024, they are also included in the 2024 Annex of Actions, which sets out the detailed implementation maps including timelines and responsible organisations. The 2024 actions that are within the Annex will be reported on quarterly by the Department of the Taoiseach.

Table 12.6 – Key Actions to Deliver Abatement in Electricity sector for the period 2024-2025

Measure	2024 Actions	2025 Actions
Accelerate Renewable Energy Generation	Accelerate Renewable Electricity Taskforce to oversee delivery	Accelerate Renewable Electricity Taskforce to oversee delivery
	Offshore Wind Delivery Taskforce to publish Key Actions for 2024	Offshore Wind Delivery Taskforce to publish Key Actions for 2025
	Revision to the National Planning Framework to include regional capacities for the allocation of national targets at a regional level in order to inform local development plan policy	
	Publish Regional Renewable Electricity Strategies	
	Publish the Revised Wind Energy Development Guidelines for onshore wind	Ensure that electricity generation grid connection policies, and regular rounds of connection offers (which facilitate timely connection of renewables and supporting flexible technologies), provide a locational signal and support flexible technologies
	Publish revised methodology for Local Authority Renewable Energy Strategies	Offshore Wind Delivery Taskforce to continue to implement the system wide plan for the delivery of ORE
	Publish new Electricity Generation Grid Connection Policy	Deliver onshore and offshore RESS auctions as per the

	Deliver onshore and offshore RESS auctions as per the annual RESS auction calendar	annual RESS auction calendar
	Develop a Private Wires Policy Framework	
	Implement Hybrid Connection Roadmap	
Accelerate Flexibility	Complete economic and spatial analysis to inform the development of the ORE Future Framework	Construction of the North-South Interconnector under way, further connecting the electricity grids of Ireland and Northern Ireland, for completion by 2027
	Submit to DECC timelines of large-scale onshore grid development projects to be delivered in 2024 and publish an appropriate version	
	Adopt Electricity Storage Policy Framework	Implementation of key actions as contained in Electricity Storage Policy Framework, 2023
	Reduce the minimum number of conventional synchronous generation units from 8 to 7 to facilitate higher levels of renewables on the system and a reduction in carbon emissions from non-renewable generation	

	Issue suite of recommendations papers on market options to incentivise low/no carbon flexible demand from the electricity sector	
	Develop and publish data sets showing the likely locations, volumes, and load profile of surplus renewable generation on our electricity grid	
Demand Management	Implementation of CRU Energy Demand Strategy	Implementation of Demand Side Strategy, focusing on targeted measures to manage demand across all sectors of the economy
	Decision on Dynamic Green Electricity tariffs	
	Implement enhanced emissions reporting framework for electricity emissions for large energy users and the system operators dispatch actions	
	Incentivise and enable large energy users to participate in flexible demand initiatives designed to enable low/zero carbon demand growth	
	Create a route to market for medium and long duration storage facilities which can provide flexible demand	

	Develop a methodology to incentivise and enable industrial heating facilities to participate in flexible demand initiatives	
	Undertake a review of energy grant schemes to assess level of flexibility/smart ready technology opportunities	
	Enable distributed flexible customers to participate in wholesale and system services markets	
	Establish a national programme of consumer communications, educational and behavioural initiatives based on research relevant to demand side flexibility	
	Complete a stakeholder consultation for an evidence-based decarbonisation pathway for the electricity system	
	Identify Smart Energy pilot schemes and skills training options to assess potential for smart energy and technology integration solutions in homes/communities	

	Enable distributed flexible customers to participate in wholesale and system services markets	
	Establish a national programme of consumer communications, educational and behavioural initiatives based on research relevant to demand side flexibility	
	Complete a stakeholder consultation for an evidence-based decarbonisation pathway for the electricity system to net-zero and support future iterations of the Climate Action Plan	

Table 12.7 – 2024 Actions

Action Number	Action
EL/24/1	Accelerating Renewable Electricity Taskforce to publish programme of work
EL/24/2	Offshore Wind Delivery Taskforce to publish key actions for 2024
EL/24/3	Revision to the National Planning Framework to include regional capacities for the allocation of national targets at a regional level in order to inform local development plan policy
EL/24/4	Publish Regional Renewable Electricity Strategies

EL/24/5	Publish the Revised Wind Energy Development Guidelines for onshore wind
EL/24/6	Publish revised methodology for Local Authority Renewable Energy Strategies
EL/24/7	Publish new Electricity Generation Grid Connection Policy
EL/24/8	Deliver onshore and offshore RESS auctions as per the annual RESS auction calendar
EL/24/9	Develop a Private Wires Policy Framework
EL/24/11	Implement Hybrid Connection Roadmap
EL/24/12	Engage with the tertiary education sector on offshore renewable energy skills (ORE) requirements
EL/24/13	Publish annual report setting out identifiable public benefits delivered by renewable energy sector
EL/24/14	Complete economic and spatial analysis to inform the development of the ORE Future Framework
EL/24/15	Submit to DECC timelines of large-scale onshore grid development projects to be delivered in 2024 and publish an appropriate version
EL/24/16	Adopt Electricity Storage Policy Framework
EL/24/17	Reduce the minimum number of conventional synchronous generation units from 8 to 7 to facilitate higher levels of renewables on the system and a reduction in carbon emissions from non-renewable generation
EL/24/18	Issue suite of recommendations papers on market options to incentivise low/no carbon flexible demand from the electricity sector
EL/24/19	Develop and publish data sets showing the likely locations, volumes, and load profile of surplus renewable generation on our electricity grid

EL/24/20	Implementation of CRU Energy Demand Strategy
EL/24/21	Decision on Dynamic Green Electricity tariffs
EL/24/22	Implementation of enhanced emissions reporting framework for electricity emissions for large energy users and the system operators dispatch actions
EL/24/23	Incentivise and enable large energy users to participate in flexible demand initiatives designed to enable low/zero carbon demand growth
EL/24/24	Create a route to market for medium and long duration storage facilities which can provide flexible demand
EL/24/25	Develop a methodology to incentivise and enable industrial heating facilities to participate in flexible demand initiatives
EL/24/26	Undertake a review of energy grant schemes to assess level of flexibility/smart ready technology opportunities
EL/24/27	Identify Smart Energy pilot schemes and skills training options to assess potential for smart energy and technology integration solutions in homes/communities
EL/24/28	Enable distributed flexible customers to participate in wholesale and system services markets
EL/24/29	Establish a national programme of consumer communications, educational and behavioural initiatives based on research relevant to demand side flexibility
EL/24/30	Complete a stakeholder consultation for an evidence-based decarbonisation pathway for the electricity system to net-zero and support future iterations of the Climate Action Plan

13. Industry

Key Messages

Sectoral Emission Ceilings

- Carbon Budget 1 (2021-2025): 30 MtCO₂eq.
- Carbon Budget 2 (2026-2030): 24 MtCO₂eq.
- Emissions Abatement (on 2018): -35% (4 MtCO₂eq. per annum by 2030)
- Emissions up to the end of 2022: 13.7 MtCO₂eq.

Trends in the Sector

This sector accounted for 9.7% of Ireland's greenhouse gas emissions in 2022 and a 9.75% share in 2021. In absolute terms emissions have reduced by 7.2% between 2022 and 2021 with a fall of approximately 0.5 MtCO₂eq.

Key Targets

Target	2025	2030
Carbon-neutral heating in industry	50-55% share of carbon neutral heating	70-75% share of carbon neutral heating
Decrease embodied carbon in construction materials	Decrease by 10% embodied carbon for materials produced and used in Ireland	Decrease by at least 30% embodied carbon for materials produced and used in Ireland
Reduce fossil fuel demand through energy efficiency measures in industry	Reduce by 7%	Reduce by 10%

Measures and Actions

- Expand and enhance supports from the Sustainable Energy Authority of Ireland, IDA Ireland, and Enterprise Ireland with a focus on achieving energy demand reduction, electrification, and biomass adoption in industry

- Electrification of new and current manufacturing processes displacing the use of fossil fuels where possible and as soon as possible
- Low and net zero carbon product substitution for construction materials and a reduction in the clinker content for cement where practical
- Utilisation of biomass, and low and zero emission gas as key fuels for decarbonisation, noting that these are limited resources, and priority will be given to its use in areas where alternative methods of decarbonisation (e.g., electrification) are not commercially or technically viable
- Continue to develop policies for hydrogen to support its deployment, predominantly for the third carbon budget period and beyond
- Start to develop carbon capture, utilisation and storage policies to support its deployment, predominantly for the third carbon budget period and beyond.

13.1 State of Play

13.1.1 Stocktake of Abatement Progress to Date and Corrective Actions Required

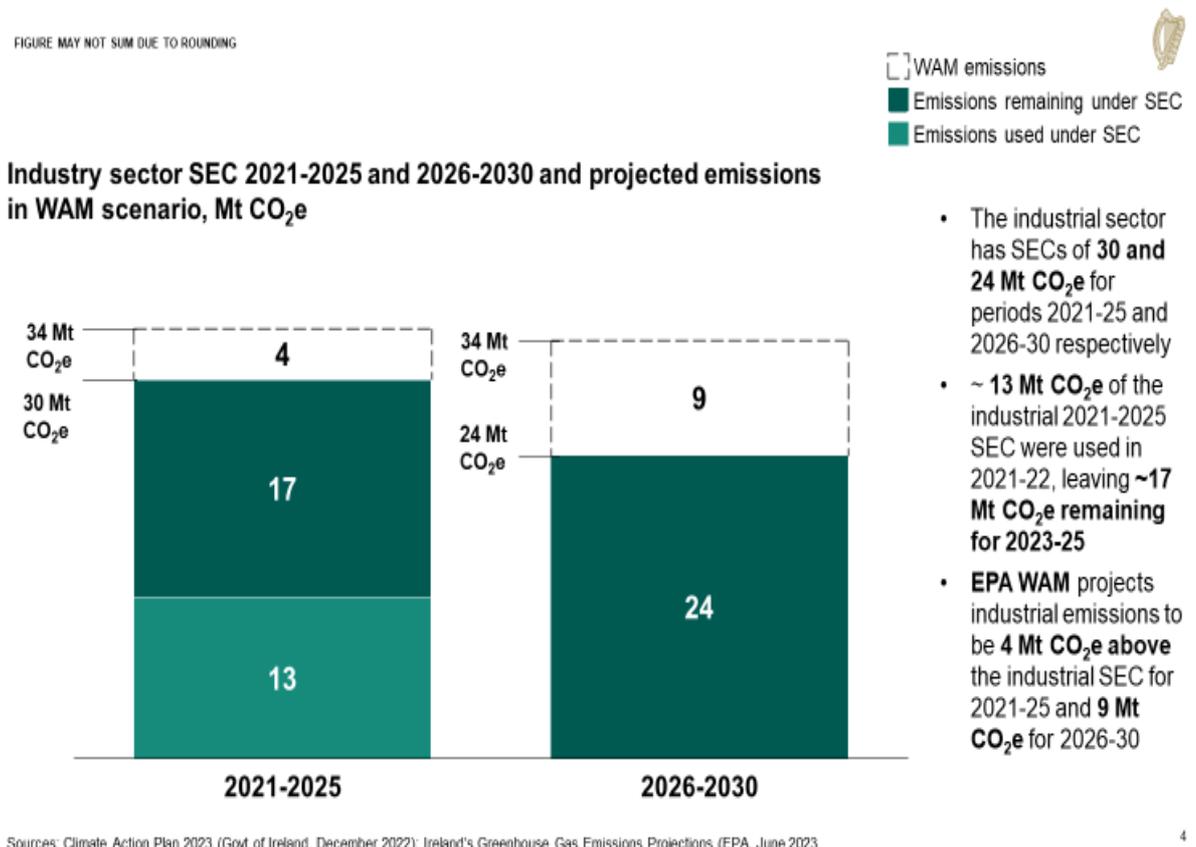
The sectoral emissions ceiling in the first budgeting period (2021-25) is 30 MtCO₂eq. The Environmental Protection Agency's (EPA) National Inventory Report for 2022 shows that 45% of the budget has been used in the first two years. To meet the sectoral emissions ceiling in the first budgetary period, the industry sector will now need to achieve annual average emissions of 5.4 MtCO₂eq. from 2023 to 2025.

The Climate Change Advisory Council (CCAC) has noted that Government must adopt new approaches to reduce emissions, creating investment and enhancing skills across the economy.

Some of the area's in the industry sector that the CCAC recommends urgent actions are:

- Updating building regulations to increase the use of timber in construction;
- Encouraging greater usage of lower carbon cement and concrete;
- Assisting industry to become more energy efficient and less reliant on fossil fuels.

Figure 13.1 – Industry Sector Emissions Relative to the Sectoral Emission Ceilings and EPA’s ‘WAM’ Scenario Projections⁸⁶



The EPA’s projections show that industry sector emissions are currently not aligned to Climate Action Plan 2023’s (CAP23) pathways and targets. The EPA projections forecast an overshoot of the carbon budget of ~4.4 MtCO₂eq. in the period 2021 to 2025, and ~9.5 MtCO₂eq. in the period 2026 to 2030.

As referenced in chapter 2, some measures included within this chapter were not included in the EPA projections. The deployment of all the measures within this chapter are required for Ireland to meet its carbon budget requirements for the industry sector.

⁸⁶ A more detailed graphic regarding the Industry sector’s emissions relative to Sectoral Emission Ceilings and EPA projections is available in Appendix 1

Compliance with the sectoral emissions ceiling for the industry sector will be challenging. Measures and actions to address these challenges are discussed in greater detail in section 13.3.2 of this chapter under the headings:

- Carbon Neutral Heating;
- Construction – Reduction in Embodied Carbon in Construction Materials;
- Construction – Reducing Concrete Use in Design and Construction;
- Construction – Product Reformulation and Alternative Construction Materials;
- Industry – Carbon Capture, Use, and Storage;
- Industrial Use of Zero Emissions Gas;
- Industrial Energy Efficiency.

It is acknowledged that a number of measures within this chapter are reliant on the development of new technologies and approaches, with uncertainty around the development of these technologies being a risk in the delivery of the associated climate goals. However, given the necessity to move away from the use of fossil fuels in industry, it is believed that the deployment of these new technologies is essential in decarbonising the industry sector.

A number of actions were identified in CAP23 to achieve the key performance indicators (KPIs) for the sector. Actions which have been completed include the launch of a Green Hydrogen Strategy in July 2023; the Department of Enterprise, Trade and Employment (DETE) successfully securing expert services in the area of the decarbonising the cement and construction, with a study being produced to inform policy on the procurement of low carbon cement material; and the publication of a draft Green Public Procurement Strategy and Action Plan for public consultation.

13.1.2 Emissions Profile to Date

Industry emissions accounted for 9.7% of Ireland's total emissions in 2022, a slight decrease on the 9.8% share in 2021. Under the sectoral emissions ceiling target, industry must reduce emissions in the year 2030 by 35% relative to the 7 MtCO₂eq. in 2018. In terms of the first carbon budgetary for period, the industry sector has a total of 30 MtCO₂eq. available and has so far utilised 13.7 MtCO₂eq. (45%) in the first two years of the five-year period.

Table 13.1 – Industry GHG Emissions 2022

Industry Emissions MtCO ₂ eq.	Share of Total GHG Emissions	Industry Emissions tCO ₂ per capita
6.6	9.7%	1.3

Industry emissions are separated into heavy industrial activities of a scale that fall within the European Emissions Trading Scheme (EU ETS) and those outside of that framework (Non-ETS). Table 13.2 shows that the abatement progress in 2022 relative to 2018 is similar in both cases.

Table 13.2 – Trends in Industry GHG Emissions 2022 relative to 2018

Timeframe	EU ETS/Non-ETS	Percentage Change	Absolute Change MtCO ₂ eq.
2022 relative to 2018	EU ETS	-5.8	-0.3
	Non-ETS	-5.7	-0.08
	Total	-5.8	-0.4

Under the EPA inventories, industry emissions are categorised under two main activities: **combustion for heat** required during manufacturing, including combined heat and power plants, in the case of heat produced for own use; and **process emissions**. Process emissions are those generated during the manufacturing process, the majority coming from the release of carbon dioxide from limestone during cement clinker production. In 2022, combustion for heat was the main source of industry's 6.6 MtCO₂eq emissions, at 4.3 MtCO₂eq. with process emissions of 2.3 MtCO₂eq. making up the balance.

Historically industrial emissions have aligned broadly with economic activity. There was a decrease in emissions following the 2008-09 recession and a steady increase with economic recovery from 2012. However, there is growing evidence of a decoupling of manufacturing combustion emissions from economic growth with emissions having decreased by 7.1% in 2022 relative to 2021 and overall, by 9.1% relative to 2018. Fuel switching from more carbon intensive oil and coal to lower carbon natural gas has been

one of the drivers for the reduction in this area to date,⁸⁷ and further low and net zero carbon shifts will be needed to deliver on the national targets. Industrial process emissions fell by 7.5% in 2022, but emissions remain equivalent to 2018 levels and represent a key challenge for the sector.

13.1.3 The Scale of the Challenge

The sectoral emissions ceilings and carbon budgets detailed in section 13.2 below demonstrate the scale of the challenge for the sector. In addition, there are also broader pressures. The proposed EU Renewable Energy Directive contains a target to increase the share of renewables for energy and non-energy purposes in the industry sector by a minimum average annual increase of at least 1.1 percentage points for renewables for the periods 2021 to 2025, and 2026 to 2030. In March 2023, a provisional agreement was reached for a binding target of at least 42.5% renewable energy and non-energy share in industry for 2030. The Corporate Sustainability Reporting Directive also entered into force in 2023. This directive modernises and strengthens the rules on social and environmental information that companies must report. A greater number of large companies, as well as listed small and medium-sized enterprises (SMEs), will now be required to routinely report in a rigorous way on sustainability.

These directives, coupled with the national targets and existing market frameworks such as the European Emissions Trading Scheme, will require substantive coordinated action for this sector.

⁸⁷ <https://www.seai.ie/publications/Energy-in-Ireland-2022.pdf>

13.2 Sectoral Ceiling and Carbon Budgets

Table 13.3 – Required Level of Decarbonisation for Carbon Budgets 1 and 2

Sectoral Carbon Budget 2021 to 2025 MtCO ₂ eq.	Cumulative Emissions to 2022	Remaining Sectoral Carbon Budget 2023 to 2025 MtCO ₂ eq.	Sectoral Carbon Budget 2026 to 2030 MtCO ₂ eq.
30	13.7	16.3	24

The total cumulative emissions in the first carbon budgetary period (2021-25) is 30 MtCO₂eq. This equates to an allowance to emit 6 MtCO₂eq. per annum on average in the period. Emissions in 2022 were 6.6 MtCO₂eq., down from 7.1 MtCO₂eq. in 2021. Approximately 45% of the budget has been used in the first two years. To meet the sectoral emissions ceiling in the first carbon budget period, the industry sector will now need to achieve annual average emissions of 5.43 MtCO₂eq. from 2023 to 2025. Current forecasts⁸⁸ indicate that industry emissions in 2023 will be of a similar scale to 2022, further increasing emissions reduction requirements in the remaining years of the first carbon budget to avoid non-compliance by the sector. A number of corrective measures have been identified to address this shortfall and are detailed in this chapter.

Table 13.4 – Required Level of Decarbonisation for Sector

2018 Emissions MtCO ₂ eq.	Indicative Target for 2025 Emissions MtCO ₂ eq.	Indicative Target % Reduction for 2025	2022 Emissions MtCO ₂ eq.	% Increase (+) / Reduction (-) to date
7.0	6.0	20%	6.6	-5.8%

⁸⁸ https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/EPA-GHG-Projections-2022-2040_Finalv2.pdf

13.3 2025 and 2030 KPIs

13.3.1 Delivering Abatement in Industry

Table 13.5 sets out the KPIs to be realised to achieve the requisite carbon abatement in each carbon budget period. The table also outlines the estimated scale of emissions abatement from the KPIs. However, it is also important to note that in almost all cases the actions to drive progress in each period may need to commence in earlier periods. For example, preparing the regulatory and policy frameworks for longer term measures such as hydrogen and carbon capture, utilisation and storage (CCUS) will happen in the current period to enable action in the third carbon budget period.

Table 13.5 – Key Metrics to Deliver Abatement in Industry

Theme	2025 KPI	2025 abatement (vs 2018) MtCO ₂ eq.	2030 KPI	2030 abatement (vs 2018) MtCO ₂ eq.	2031-2035 measures
Overarching Transition Measurement	Reduction in fossil fuel use in industry sector from 64% of final consumption (2018) to 45%	Abatement set out in KPIs below	Reduction in fossil fuel use in industry sector to 30% of final consumption	Abatement set out in KPIs below	Further reductions in fossil fuel use in industry sector
Carbon Neutral Heating	50-55% share of carbon neutral heating in total fuel demand ⁸⁹	0.6	70-75% share of carbon neutral heating in total fuel demand	1.2 ⁹⁰	70-80% share of carbon neutral heating in total fuel demand
Construction Materials	Decrease embodied carbon in construction materials produced and used in Ireland	0.4 ⁹¹	Decrease embodied carbon in construction materials produced and used in Ireland by at least 30% through product	1.0	Implementation of CCUS framework product substitution for construction materials and reduction of clinker content in cement

⁸⁹ Carbon neutral heating includes substitution of fossil-fuel heating (e.g., electrification and biomass) and excludes the use of zero-emission gas (e.g., biomethane blending). The abatement figure is updated as a correction to the CAP23 abatement potential to reflect the abatement potential related to a 50-55% share of carbon neutral heating in total fuel demand

⁹⁰ The abatement figure represents an update the CAP23 abatement potential because of a rounding of the abatement figure to 1 decimal place

⁹¹ The abatement figures are updated since CAP23 to reflect the abatement potential linked to an 10% and 30% decrease in embodied carbon in construction materials produced and used in Ireland

	by 10% through product substitution		substitution for construction materials and reduction of clinker content in cement		
Energy Efficiency	Reduce industry fossil fuel demand through energy efficient measures in manufacturing process by 7%	0.2	Reduce industry fossil fuel demand through energy efficient measures in manufacturing process by 10%	0.2	Further reductions in industry energy demand
Increasing Use of Zero Emission gas	At least 1 TWh consumption of zero emission gas for industrial heating ⁹²	0.2	At least 2.1 TWh consumption of zero emission gas for industrial heating and aligned with the Heat Policy Statement	0.4	Further consumption of zero emission gas for industrial heating in line with national biomethane and hydrogen strategy ambitions
Total Estimated Abatement Potential		1.4		2.8	

⁹² KPI is updated since publication of CAP23 to reflect new targets set by the biomethane strategy from 1.2 TWh in CAP23 to 1.0 TWh in CAP24

13.3.2 Measures

Measures are required across a range of different industrial emission sources to deliver on the 2030 targets. The following represent measures deemed critical to success for the sector, with a focus on measures that progress decarbonised heating, reduced embodied carbon and emissions from construction materials, and energy efficiency.

13.3.2.1 Carbon-neutral Heating

A large portion of emissions from industry arise from fossil fuel use for heat in manufacturing. These fuels can be replaced with low carbon alternatives such as renewable electricity. Medium to low industrial heating processes have the potential to use direct electrification for heat. The electrification of industrial heat, when paired with thermal energy storage or onsite energy storage or renewable self-generation, can equip the industry sector to increasingly contribute to electricity demand response and flexibility thereby increasing the resilience of the grid, capturing the value of off-peak excess electricity, and supporting renewables integration.

13.3.2.2 Construction – Reduction in Embodied Carbon in Construction Materials

Under the Climate Action Plan, the Sustainable Energy Authority of Ireland (SEAI) are to lead several actions that will improve transparency of the embodied carbon in buildings. These actions entail the development of a national database system comprising building (and other construction) materials, an official embodied carbon calculation methodology with associated software, and a resultant embodied carbon rating system for buildings.

Government is working towards the use of best-practice carbon management and reduction practices across our construction sector. In time that will include Lifecycle Global Warming Potential (GWP) assessments of public and private construction practices, ensuring carbon is minimised in the design of projects, the materials used, building practices, and ultimately throughout the lifetime of the building or infrastructure being built. Work is underway on the requisite methodology and ensuring data availability, aligned with the EU approach under the Energy Performance of Buildings Directive and the Construction Product Regulation. However, it will take time to develop the relevant product database, the appropriate oversight mechanisms, and the implementation skills required.

Given the urgency of our decarbonisation targets, we need to start where we can make a big impact. The most carbon intensive elements of construction projects are generally concrete (and the cement it contains) and steel. The key component of cement, which is produced in

a carbon intensive process, is the clinker. In simple terms we need to reduce the carbon intensity of clinker and the amount of clinker in cement; and to reduce the amount of cement in concrete, and the amount of concrete in how we design and build. New regulations and standards have a potential role to play here.

13.3.2.3 Construction – Reducing Concrete Use in Design and Construction

The adoption of modern methods of construction (MMC) has the potential to dramatically improve construction sector productivity, innovation, speed of delivery, sustainability and ultimately, costs. MMC encourages products such as cross-laminated timber and timber frame that can replace concrete and steel in many applications such as floors, roofs, walls and stairs due to their strength and versatility. Timber framed buildings are increasingly common in Ireland making up approximately 25% of the Irish market⁹³.

To promote the widespread adoption of MMC, DETE is leading a cross-Department and cross-Agency MMC Leadership and Integration Group. This is the overarching leadership mechanism to ensure integration and coordination across a range MMC entities and initiatives, including Ireland’s National Construction Technology Centre, which will include a focus on sustainable construction. A very important milestone has been achieved in 2023, with the publication of the *Roadmap for increased adoption of MMC in Public Housing delivery*. Over the coming decade, the State will play a significant role in the procurement of construction services, as the supply of social and affordable homes increases. Through the implementation of the roadmap, the State will also play its part in the transformation to new and innovative forms of sustainable home delivery.

Connected to the above, the Department of Agriculture, Food and Marine lead a working group with the objective of specifically promoting the use of timber in construction, and the Department of Further and Higher Education, Research, Innovation and Science are leading on the establishment of a MMC Demonstration Park at Mount Lucas, to showcase the latest innovations in residential construction technology.

The implementation of Building Information Modelling (BIM) in construction projects has the potential to drive significant efficiencies in projects and costs, to enable better-quality outcomes. BIM requirements are to be introduced into the Capital Works Management Framework from January 2024 for major public projects over €100 million and mandated on a cascading scale for project values under €1 million within a 4-year period to 2028. BIM

⁹³ Modern Methods of Construction, CIF 2021

implementation aligns with the introduction of MMC and will aid the assessment of WLCA in the early stages of project lifecycles for both embodied and operational carbon use.

Declarations of Performance/Conformance (DOPC) issued under the Construction Products Regulations (CPR) providing transparent data for construction products, and the calculation of embodied carbon in construction materials, will also enable better decision-making early in the design process. DOPCs issued under the CPR are a standardised way of providing data about the environmental impacts of a product through the construction product life cycle, integrated into building level assessment, and used to compare construction products in a building context.

13.3.2.4 Construction – Product Reformulation and Alternative Construction Materials

Optimised design and modern methods of construction have the potential to reduce the quantities of concrete used in construction. However, cement will continue to be required in construction and infrastructure. Lower carbon cements will, therefore, make a valuable contribution to decarbonisation in the sector and there are options through reformulation and substitution. Cement products can be reformulated using fillers and alternative binders without compromising its integrity, and this in turn will reduce the clinker content and carbon intensity. In addition, novel cement chemistries are also under development internationally, that may further reduce the requirement for the use of clinker.

The public sector is the State's largest purchaser of construction products and should act as an influential market player regarding the adoption of lower carbon concrete and cements. Through specification of lower carbon cements in public procurement, the State will aid market development and the supply of lower carbon concrete and/or cement products. DETE is completing a technical study into this area at present. Enterprise Ireland (EI) will also support companies undertaking high-risk research and development in relation to novel cementitious materials; innovative products; and more efficient production technologies.

13.3.2.5 Industry – Carbon Capture, Use, and Storage

CCUS represents a range of developing technological solutions that can capture and then store or use carbon emissions from otherwise difficult to abate sectors. The broad concept is that the carbon is captured from large stationary industrial facilities, compressed, and then either used (e.g., in the production of products such as synthetic fuels or stored in minerals) or transported for long term geological storage. In addition to managing emissions from industrial point sources, carbon storage when paired with atmospheric carbon capture, has the potential remove carbon from the atmosphere. Several industrial carbon transport and

storage networks are currently under development in Europe. Projects in Norway, Denmark and the Netherlands are developing offshore carbon stores with a mix of ship and pipeline carbon transport solutions.

A national CCUS strategy, reviewing opportunities for capture, utilisation, transport, and storage, is essential to provide a clear policy framework to guide appropriate and effective long-term investment decisions.

13.3.2.6 Industrial Use of Zero-Emissions Gas

Decarbonised gases such as green hydrogen and biomethane can provide a decarbonisation pathway for reducing emissions arising from medium and high temperature processes. To facilitate investment, we will bring forward policies and regulatory frameworks to stimulate domestic biomethane production and use, and the development of a sizeable hydrogen sector. The SEAI's National Heat Study states that the optimal application for biomethane is in the decarbonisation of operations with direct high heat demands for which alternatives such as electrification are more challenging. The Department of Agriculture, Food and the Marine (DAFM) and the Department of the Environment, Climate and Communications (DECC) established a Biomethane Working Group to develop a National Biomethane Strategy. The strategy sets out the pathway to supplying up to 5.7 TWh of biogenic methane by 2030. In line with the National Heat Study, this gas should be prioritised for difficult to abate emissions where alternatives are not readily available, such as high temperature heat in manufacturing.

EI and IDA Ireland are also working closely with client companies in the manufacturing sectors to assess which processes and operations can utilise biogas or biomethane sustainably and cost effectively. Our enterprise agencies will work to support these businesses in decarbonising their processes, including aligning any supports with the incentives and interventions under a Renewable Heat Obligation, and with support provided to the agricultural supply chain for developing supply of such fuel.

Green hydrogen represents a distinct longer-term pathway for zero-emission gas in Ireland and DECC published a National Hydrogen Strategy in 2023. This strategy sets out our strategic vision on the important role that renewable hydrogen will play in decarbonising Ireland's energy system, ensuring our energy security and opening up eventual opportunities to become a net exporter of green energy over the longer term. Under the strategy, renewable hydrogen is envisaged to play a key role in decarbonising Ireland's heating needs, particularly for high temperature heating needs. It is expected to be available for supply to the market during the early 2030s.

The National Hydrogen Strategy sets out a list of 21 high level actions, which are to be undertaken over the period up to 2030 to further support the sectors development. These actions require support from a wide variety of stakeholders across both Government and its Agencies. DECC's focus for 2024 will be on ensuring a detailed implementation plan and appropriate governance arrangements are in place.

13.3.2.7 Industrial Energy Efficiency

The more efficient we make our production processes the less energy is required. Even as we seek to electrify industry and decarbonise the power sector, we must remain aware of the multiple benefits of energy efficiency as a general strategy. We will require a range of cross-cutting energy efficiency measures to reduce industry emissions, to lower energy demand, and to foster increased resource efficiency and competitiveness. To accelerate energy efficiency measures in industry, the following actions will be adopted:

- Energy management systems will be mandatory for organisations who use more than 85 TJ of energy per annum;
- The SEAI's Large Industry Energy Network will support organisations in adopting energy management systems, developing emissions management systems, improving energy performance metrics, and adopting best practice in energy efficiency and emissions reductions;
- The SEAI's Excellence in Energy Efficient Design (EXEED) programme will support large energy users with developing exemplar energy efficiency approaches to new and existing assets, including energy efficiency design and capital support;
- The SEAI will provide enhanced support partnership to a cross section of 10-15 large energy users to demonstrate and support ambitious action in key sectors;
- DECC will assess whether mandated caps on any increase in fossil fuel demand by large energy users could be put in place from 2026;
- We will support industry-led initiatives, such as Business in the Community Ireland, to support decarbonisation programmes, such as low carbon pledges.

13.3.2.8 Industry Guidance – Agency-led Engagement and Supports for Business

The White Paper on Enterprise commits to embedding the net-zero transition as a core part of Ireland's enterprise policy and to capturing the economic benefits and enterprise opportunities that arise from the green transition. Carbon abatement is now a core objective for our enterprise agencies, and new industrial development will be less reliant on fossil

fuels. Enterprise policy will work to assist Irish-based firms in fully realising the potential of the global green economy, supporting them to become leaders in innovation.

Enterprise Ireland and IDA Ireland are already working with their existing clients to decarbonise their operations while continuing to facilitate growth. This involves fully incorporating climate impacts into the current economic appraisal model and working closely with the existing highest emitting industrial sectors to assist them with detailed decarbonisation implementation strategies. EI and IDA Ireland will also seek to develop and support new clients in low-carbon sectors. Their work for all clients will involve aligning grant funding and supports with delivering progress on emissions reductions targets for industry.

Examples of this include the Green Transition Fund (GTF) and other funding sources that support the decarbonisation of Irish industry. The GTF is part of Ireland's National Recovery and Resilience Plan, and the total budget for the fund is split into two streams, the Enterprise Emissions Reduction Investment Fund (€30 million) and the Climate Planning Fund for Business (€25 million). These were launched in 2022 and will run to 2026. The Enterprise Emissions Reduction Investment Fund targets manufacturing companies using fossil fuels and incentivises them to adopt carbon abatement technologies in their processes. The Climate Planning Fund for Business is targeted at companies of different sizes and at different stages of engagement, to support them in accelerating their awareness of carbon abatement opportunities; build decarbonisation capabilities; and put in place sustainability plans. Individual project funding under the Green Transition Fund is capped at €1 million. The Environmental Aid Scheme will be used to support larger projects, where significant abatement can be achieved.

The SEAI also offers a range of initiatives and supports to improve business energy efficiency. These include Government-funded EXEED and Support Scheme for Renewable Heat (SSRH). The SEAI also continues to support energy audits, provides free training for businesses, and provides financial support to those businesses that want to invest in energy efficiency.

13.3.2.9 Market Based Instruments

In addition to the categories of measures identified for heating, construction, energy efficiency, zero-emissions gas, and advice and support, the EU ETS and Non-ETS sectors of industry in Ireland are subject to one of two market-based instruments designed to incentivise decarbonisation.

EU Emissions Trading System

Heavy industry operators in Ireland are part of the EU ETS. The EU ETS is a cornerstone of the EU's policy to combat climate change and it is a key tool for reducing greenhouse gas emissions cost-effectively. The EU ETS operates on a “cap and trade” principle. The cap is an absolute limit on the level of emissions across the EU ETS marketplace, and all participants must either reduce their emissions in line with their emission allowance, or purchase permits from another market participant that has excess emission allowances to trade. The EU ETS is an important mechanism to drive emissions reductions in Ireland. Revisions for the EU ETS proposed under the EU Fit for 55 package were formally approved in April 2023 and include significant changes that aim at strengthening the decarbonisation incentive in industry. EU ETS emissions are set to reduce by 62% (previously 43%) compared to 2005, further tightening the cap on all participants. In addition, while industrial emitters currently receive a proportion of free allocation of emissions permits, the updated EU ETS will see free allocation for many industries phased out from 2026, adding further upward pressure to the carbon price.

Irish Carbon Pricing

The carbon tax applies to industry that falls outside of the EU ETS in Ireland. As we pursue decarbonised industrial activities, policy will work to prevent a large gap emerging between carbon pricing in the EU ETS and non-ETS sectors so as to ensure a strong broad signalling effect for industrial decarbonisation.

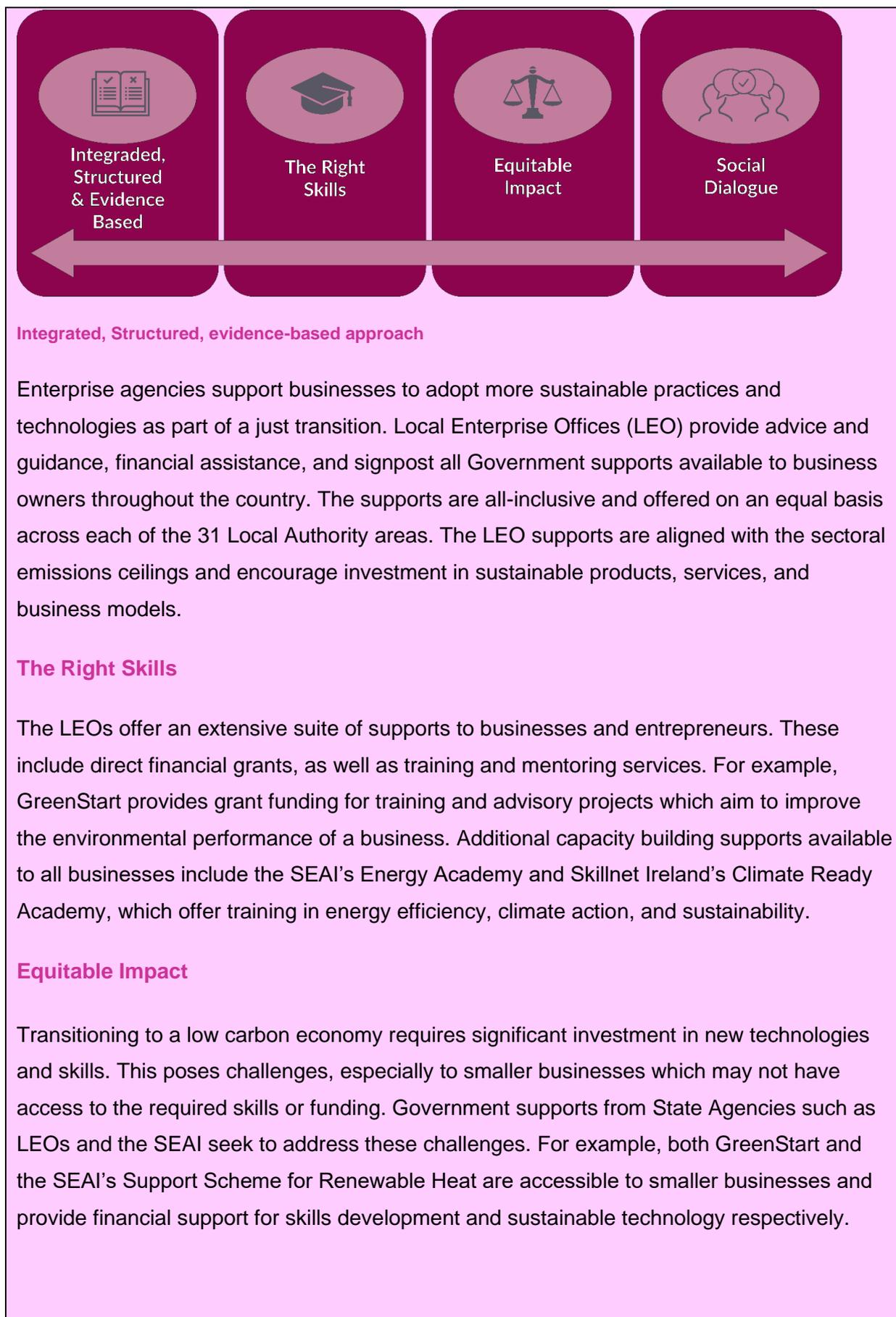
13.4 Citizen Engagement

Climate Conversations 2022 are a core component of the annual National Dialogue on Climate Action programme. 4,300 people across Ireland were engaged through the online consultation in addition to public participation network workshops. The public consultation found over four-fifths (81%) of respondents said that businesses and enterprises play a “very important” role in delivering climate action. People supported stronger regulations on emissions, stricter reporting requirements, but think that companies – particularly SMEs – require increased support from the Government to improve their climate literacy and reduce emissions.

13.5 Just Transition

Supporting smaller businesses to meet the costs associated with adopting more sustainable technologies and practices is necessary for ensuring a just transition towards our climate targets.

Box 13.1 – Just Transition



Dialogue

The policy position for business supports is set by DETE. The development of policy includes the White Paper, which is underpinned by an extensive consultation process, to ensure the views, experience and aspirations of Ireland's citizens, workers and businesses are adequately captured in the analysis.

13.6 Actions

Table 13.6 included in this chapter sets out the sector specific roadmap of actions to 2025 that will support the delivery of Ireland's carbon budgets and sectoral emissions ceilings.

Table 13.7 specifically describes the actions for delivery in 2024. Where these actions are high-impact actions new to 2024, they are also included in the 2024 Annex of Actions. The 2024 actions within the Annex will be reported on quarterly by the Department of the Taoiseach.

Table 13.6 – Key Actions to Deliver Abatement in Industry for the period 2024-2025

Measure	2024 Actions	2025 Actions
Carbon-neutral Heating in Industry	Implement the revised SSRH	Implement the revised SSRH
	Implement the Decarbonisation Roadmap for Industrial Heat based on the recommendations of the SEAI National Heat Study, including actions to accelerate and drive system-wide delivery of industrial heat decarbonisation	Implement the actions published Decarbonisation Roadmap for Industrial Heat based on the recommendations of the SEAI National Heat Study
Construction Materials	Advance the policy position on CCUS depending on feasibility assessments	Develop and finalise an embodied carbon building rating calculation methodology taking account of Construction Products Regulation (where available) and EPBD
	Implement actions to promote timber use in construction arising from Working Group on Timber in Construction, led by DAFM	Develop a database for all building materials and their embodied emissions and ensure that DOPCs issued under the CPR are reviewed and kept up to date
	Develop and finalise an official, standardised, calculation methodology for estimating building emissions, including overall embodied carbon	

Fossil Fuel Demand Reduction through Energy Efficiency Measures	Determine the best energy efficiency measures through additional requirements in energy audits and the Large Industry Energy Network	Determine the best energy efficiency measures through additional requirements in energy audits and the Large Industry Energy Network
Increasing Use of Zero-emission Gas	Enterprise development agencies will support their clients in implementing the use of zero-emission gas	Enterprise development agencies to support their clients to implement the use of zero-emission gas
		Adopt EU standards for renewable and low carbon hydrogen and develop a national certification scheme to provide clarity to end users as to the origin and sustainability of their hydrogen
	Develop a work programme for implementing the National Hydrogen Strategy, and ensure appropriate governance arrangements are in place for its delivery, including a review and update the terms of reference of the Interdepartmental Hydrogen Working Group to recognise its role in implementation of the strategy	Undertake further work to assess the role that integrated energy parks could play in our future energy system, including their potential benefits and the possible barriers (market, legal or other) that may exist
Cross-cutting		Complete a review on the adequacy of existing policy supports for energy efficient technologies

		Deliver the programmes to decarbonise industry outlined in the NDP and NRRF submissions
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Table 13.7 – 2024 Actions

This table sets out all actions for delivery in 2024. Where these actions are high-impact actions new to 2024, they are also included in the 2024 Annex of Actions, which sets out the detailed implementation maps including timelines and responsible organisations. The 2024 actions that are within the Annex will be reported on quarterly by the Department of the Taoiseach.

Action Number	Action
IN/24/1	Implement the revised SSRH
IN/24/2	Implement the Decarbonisation Roadmap for Industrial Heat based on the recommendations of the SEAI National Heat Study, including actions to accelerate and drive system-wide delivery of industrial heat decarbonisation
IN/24/3	Development of a CCUS strategy to provide a clear policy framework to guide long-term investment decisions
IN/24/4	Implement actions to promote timber use in construction arising from Working Group on Timber in Construction, led by DAFM
IN/24/5	Commence the development of an official, standardised, calculation methodology for estimating building emissions, including overall embodied carbon
IN/24/6	Implement the best energy efficiency measures through additional requirements for project implementation in mandatory energy audits and the Large Industry Energy Network

IN/24/7	Enterprise agencies will support their clients in implementing the use of zero-emission gas
IN/24/8	Develop a work programme for implementing the National Hydrogen Strategy, and ensure appropriate governance arrangements are in place for its delivery

14. Built Environment

Key Messages

Sectoral Emission Ceilings

- Residential: 29 MtCO₂e. for 2021-2025, and 23 MtCO₂e. for 2026-2030
- Commercial/Public: 7 MtCO₂e. for 2021-2025, and 5 MtCO₂e. for 2026-2030

State of Play/ Trends in the Sector

- The built environment sector accounted for 11.1% of Ireland's greenhouse gases in 2022, down from 12.3% in 2021

Key Targets

- All new dwellings designed and constructed to Nearly Zero Energy Building standard by 2025, and Zero Emission Building standard by 2030
- Equivalent of 120,000 dwellings retrofitted to BER B2 or cost optimal equivalent by 2025, and 500,000 dwellings by 2030
- Up to 0.8 TWh of district heating installed capacity across both the residential and commercial building stock by 2025, and up to 2.7 TWh by 2030
- 170,000 new dwellings using heat pumps by 2025, and 280,000 by 2030
- 45,000 existing dwellings using heat pumps by 2025, and 400,000 by 2030
- Up to 0.6 TWh of heating provided by biomethane by 2025, and up to 1.1 TWh by 2030
- Delivery of savings of 0.735 KtCO₂e. in public and commercial buildings

Measures and Actions

- An ambitious National Residential Retrofit Plan
- Strengthening our existing building regulations
- Establishment of the Heat and Built Environment Delivery Taskforce
- Development of a National Policy Statement on Heat

- Supporting the growth and development of efficient district heating, electrification of heating, and utilisation of geothermal energy
- Implementation of a Renewable Heat Obligation
- A roadmap to support the decarbonisation of commercial buildings
- Supports for the public sector to decarbonise its building stock

14.1 State of Play

The built environment comprises the residential, public and commercial sectors, and accounted for 11.1 % of Ireland's greenhouse gases (GHG) in 2022, down from 12.3 % 2021.⁹⁴ The Sustainable Energy Authority of Ireland's (SEAI) Energy in Ireland 2022 report⁹⁵ indicates that fossil fuels remain the dominant source of energy in our homes, providing 72.6% of energy used in the residential sector in 2021. Oil and gas are used predominantly for space heating, but also for water heating.

Our building stock and heating requirements span all areas of our economy and society. This means that decarbonising our existing built environment will take an incredible effort across households, businesses and the public sector, supported by appropriate Government regulation and incentives. For this reason, the Heat and Built Environment Task Force has a key role in co-ordinating all the required actions. These actions are complex and take time, with long-term policy, legislative and funding clarity demanded by stakeholders as they consider significant investment decisions.

In addition to decreased emissions, a move away from imported fossil fuels towards indigenous renewables will increase our energy security. Sustained action to decarbonise heating will also help to address increased energy costs being experienced by householders and businesses. However, given the extent of the multi-annual investment in fossil fuel networks and supply chains, the transition requires State leadership, direction, and appropriate regulation and investment. In particular, affordability can be a significant challenge for homeowners seeking to upgrade their homes to a BER B2 rating with a heat pump.

⁹⁴ <https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/irelands-provisional-greenhouse-gas-emissions-1990-2022.php>

⁹⁵ [Energy-in-Ireland-2022.pdf \(seai.ie\)](https://www.seai.ie/energy-in-ireland-2022.pdf)

As indicated in the Climate Conversations 2022 report⁹⁶, Irish people have already taken action to reduce the amount of energy they use at home by a combination of means, including improving home insulation, using smart technology and installing heat pumps.

Energy efficiency first is the key principle in relation to the built environment and is included in the 2023 Energy Efficiency Directive for the first time as a policy requirement. The first goal should be to shrink our overall energy demand, through energy efficiency measures, which also makes our other energy and climate goals easier to achieve.

14.1.1 Stocktake of Abatement Progress to Date and Corrective Actions Required

Based on the EPA's 2023 emissions projections, both the residential and commercial/public sub-sectors are projected to marginally exceed their sectoral emissions ceilings in the first carbon budget period. This is on the basis of all existing measures being delivered on time and in full. An exceedance is also projected for the second carbon budget period for the commercial/public sub-sector, with the residential sub-sector being marginally under its sectoral emissions ceiling for the period.⁹⁷ This is a continuation of the progress already made by the residential sector and is described in section 14.1.2.

In its 2023 Annual Review, the Climate Change Advisory Council (CCAC) has indicated that 45% and 41% of the budgets for the residential and commercial/public sectors respectively were expended in the first two years of the first carbon budgetary period, and while these sectors are close to their target there is still potential for further emissions reduction measures to be taken.⁹⁸ Given that the decrease in emissions in the built environment between 2021 and 2022 was partly due to increased fossil fuel prices and a mild winter, there is a risk that the abatement associated with fossil fuel price and supply effects may not be embedded in household heat demand over the longer term, and continued emphasis on long-term energy efficient behaviours and decarbonised technologies are key.

⁹⁶<https://www.gov.ie/en/publication/bb1a3-climate-conversations/> <https://www.gov.ie/en/publication/bb1a3-climate-conversations/>

⁹⁷ <https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/irelands-greenhouse-gas-emissions-projections-2022-2040.php>

⁹⁸ [CCAC-AR-2023-FINAL Compressed web.pdf \(climatecouncil.ie\)](#)

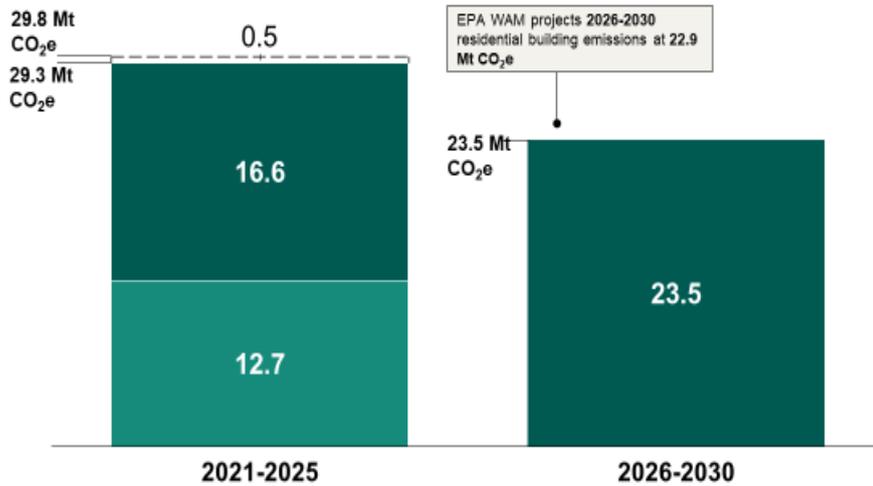
Figure 14.1 – Built Environment (Residential) Sector Emissions Relative to the Sectoral Emission Ceilings and EPA’s ‘WAM’ Scenario Projections⁹⁹

FIGURE MAY NOT SUM DUE TO ROUNDING



- WAM emissions
- Emissions remaining under SEC
- Emissions used under SEC

Built environment (Residential) SEC 2021-2025 and 2026-2030 and projected emissions in WAM scenario, Mt CO₂e

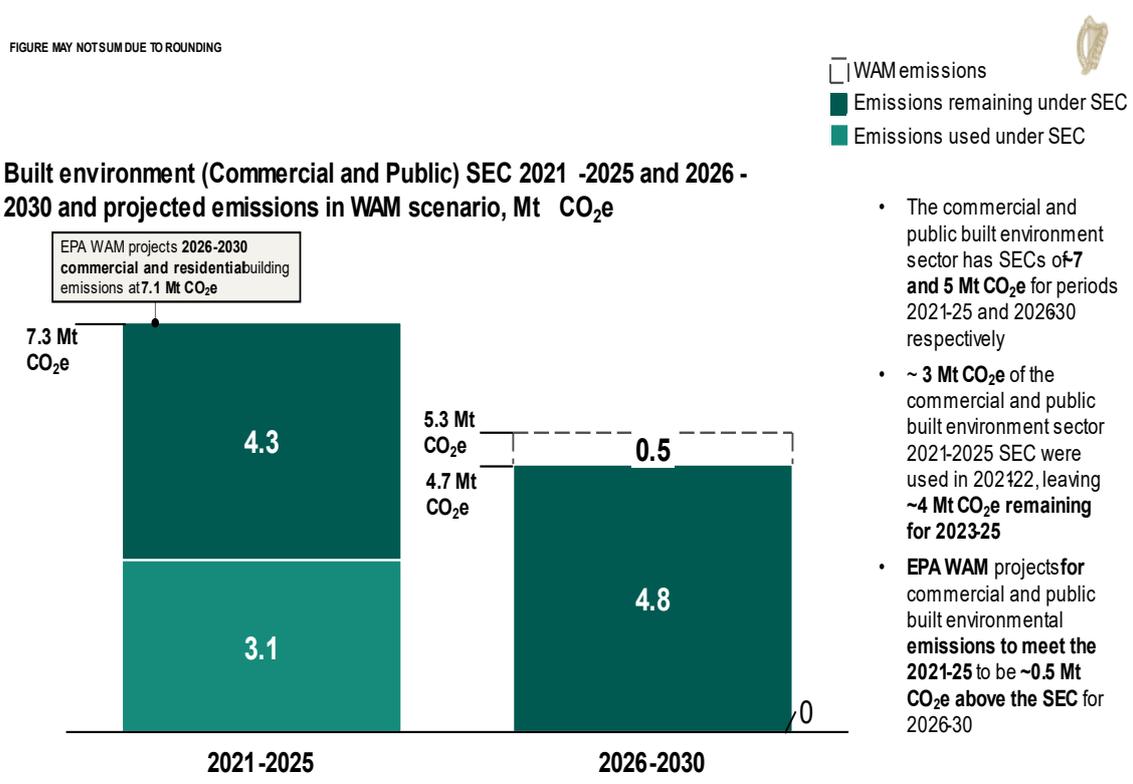


- The residential built environment sector has SECs of **29.3 and 23.5 Mt CO₂e** for periods 2021-25 and 2026-30 respectively
- ~ **13 Mt CO₂e** of the residential built environment sector 2021-2025 SEC were used in 2021-22, leaving ~**17 Mt CO₂e remaining for 2023-25**
- **EPA WAM** projects residential built environment emissions to be **0.5 Mt CO₂e above SEC** for 2021-25 and to **meet the 2026-2030 SEC**

Sources: Climate Action Plan 2023 (Govt of Ireland, December 2022); Ireland's Greenhouse Gas Emissions Projections (EPA, June 2023).

⁹⁹ A more detailed graphic regarding the Built environment (Residential) sector's emissions relative to Sectoral Emission Ceilings and EPA projections is available in Appendix 1

Figure 14.2 –Built Environment (Commercial/Public) Sector Emissions Relative to the Sectoral Emission Ceilings and EPA’s ‘WAM’ Scenario Projections¹⁰⁰



Source: DECC Climate Action Plan 2023, EPA Ireland's Greenhouse Gas Emissions Projections, June 2023.

In order to remain within the carbon budgets for both periods, all key metrics set out in Tables 14.5 and 14.6 must be met for the relevant carbon budget period. In line with the recommendations of the CCAC, this will require increased efforts to agree and implement relevant policies and measures, particularly in relation to areas still under policy development, such as district heating; biomethane production and end use; increased energy efficiency; and decarbonisation of the public sector estate. The Heat and Built Environment Delivery Taskforce will play a key role driving action in these areas for the coming year. The taskforce has already identified five cross-sectoral focus areas that need to be addressed to accelerate decarbonisation: policy/regulation, funding, communications, skills, and support delivery. Detailed planning and implementation at taskforce level is providing more granular detail on the implementation pathways and associated resource requirements at all levels of the economy and society

¹⁰⁰ A more detailed graphic regarding the Built Environment (Commercial and Public) sector's emissions relative to Sectoral Emission Ceilings and EPA projections is available in Appendix 1

Progress on climate action in the built environment has been strong. For example, 27,199 residential property upgrades were completed in 2022, exceeding the target of 26,940, and in December 2022 the Tallaght District Heating Scheme became operational. Further details of progress can be found online in the Climate Action Plan 2023 (CAP23) Progress Reports¹⁰¹ and reports on residential retrofit¹⁰²

14.2 Greenhouse Gas Emissions in the Built Environment

Table 14.1 – Latest GHG Emissions¹⁰³

Sector	Emissions MtCO ₂ eq.	Share of Total GHG Emissions	Emissions tCO ₂ per capita
Residential	6.1	9%	1.19
Commercial / Public	1.4	2%	0.28
Total	7.5	11%	1.47

Table 14.2 – Trends in GHG Emissions

Sector	Timeframe	Percentage Change	Absolute Change MtCO ₂ eq.
Residential	2018-22	-14 %	-0.99
Commercial / Public	2018-22	-6 %	-0.12
Total	2018-22	-12 %	-1.1

Ireland has reduced the share of national emissions from the built environment sector from 13% of total emissions in 2005 to 11.1 % in 2022, despite a large increase in our building stock over the same period. This reduction reflects significant strengthening of the building regulations from 2006 onwards, improved efficiency through retrofit, the adoption of new low carbon technologies, and fuel switching. The introduction of the Nearly Zero Energy Building (NZEB) standard in the 2019 Building Regulations for new dwellings has seen a 70%

¹⁰¹ <https://www.gov.ie/en/publication/55fde-climate-action-important-publications/>

¹⁰² <https://www.seai.ie/news-and-media/home-energy-upgrades-2022/>

¹⁰³ Data based on EPA Provisional data for 2022, see <https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/irelands-provisional-greenhouse-gas-emissions-1990-2022.php>

reduction in the emissions from new homes relative to those built in 2005. Oil and liquid petroleum gas are no longer used as the primary heating source in new dwellings, with heat pumps installed in 88 %¹⁰⁴ of dwellings completed during the period 2020 to 2023.

14.3 Sectoral Emissions Ceilings in the Built Environment

Two sectoral ceilings apply to the built environment, one each for the residential and commercial/public sectors. These are set out in table 14.3 below.

Table 14.3 – Required Level of Decarbonisation for Carbon Budgets 1 and 2

Sector	Sectoral Carbon Budget 2021 to 2025 MtCO ₂ eq.	Cumulative Emissions to 2022 MtCO ₂ eq.	Remaining Sectoral Carbon Budget 2023 to 2025 MtCO ₂ eq.	Sectoral Carbon Budget 2026 to 2030 MtCO ₂ eq.
Residential	29	13.1	15.9	23
Commercial/Public	7	2.8	4.2	5

To achieve these highly ambitious targets, we must significantly and urgently reduce the use of all fossil fuels (coal, natural gas, oil, and peat) and improve energy efficiency in our buildings. A continued expansion in retrofit activity will underpin this reduction, with resulting benefits for all householders in terms of efficiency, comfort, health and wellbeing. All buildings will need to switch to heat pumps, efficient district heating or other renewable sources by 2050 to meet our National Climate Objective. This will require, over time, the ending of new gas connections, and a restriction on the installation of new fossil fuel heating systems in new or refurbished buildings, as alternative heating sources become increasingly viable for consumers. The publication of a National Heat Policy Statement in 2024 will, drawing on the evidence of the National Heat Study, set out the overarching approach to decarbonising the heat sector in Ireland.

¹⁰⁴ [https://www.cso.ie/en/releasesandpublications/ep/p-dber/domesticbuildingenergyratingsquarter22023/#:-:text=The%20number%20of%20domestic%20building,Table%20A%20and%20Table%209\).](https://www.cso.ie/en/releasesandpublications/ep/p-dber/domesticbuildingenergyratingsquarter22023/#:-:text=The%20number%20of%20domestic%20building,Table%20A%20and%20Table%209).)

Table 14.4 – Required Level of Decarbonisation for Sector

Sector	2018 Emissions MtCO₂eq.	Indicative Target for 2025 Emissions MtCO₂eq.	Indicative Target % Reduction for 2025	2022 Emissions MtCO₂eq.	% Increase (+) / Reduction (-) to date
Residential	7	5.45	20 %	6.1	-14
Commercial / Public	2	1	20 %	1.4	-6

The policy pathways to decarbonise the residential, commercial and public sub-sectors will build on progress already achieved in the areas of retrofit and decarbonisation; building regulations and standards; and in developing legal and regulatory frameworks for district heating and for geothermal energy. The use of zero-emissions biomethane in heating will also be necessary to achieve our targets. Actions to further develop the supply chain for this alternative to fossil fuel gas are set out in the chapter 16.

14.3.1 Heat and Built Environment Delivery Taskforce

The Heat and Built Environment Delivery Taskforce was established to oversee and support activities, outputs and projects across Departments and Agencies in relation to retrofitting, renewable heat, district heat, decarbonisation and energy use of the building stock, and industrial heat. Its role is to identify key elements on the critical path e.g., regulation; funding and human resource capacity requirements; gaps; areas of duplication; and opportunities and synergies, while proactively managing risks and constraints with a view to driving delivery. Importantly, as new forms of heating are introduced into Ireland at scale for the first time, the position with reference to optimal end use will evolve.

The taskforce established in 2023 will, over the course of 2024, continue to focus on the acceleration of system-wide project and programme delivery, with high level actions to be taken set out in each Climate Action Plan.

The taskforce is supported by working groups focusing on industry, the commercial built environment, the decarbonisation of public sector buildings, residential retrofit, biomethane, and district heating. It will also capture and address cross-cutting themes such as appropriate policy and regulation, funding, communications and human resource capacity,

and a focus group has been established to provide an escalation step for thematic issues and risks that emerge which are not resolved at working group level.

14.3.2 Construction

Long-term decarbonisation of the built environment will also require us to decrease the emissions associated with production, construction and demolition. This will necessitate significant technological changes to construction processes. The State's role in this transition will include a range of measures to facilitate, encourage and drive the necessary innovations and technology adoption.

This will be driven at EU level by an updated and strengthened Energy Performance of Buildings Directive (ERBD) and Construction Products Regulation, which will create a harmonised framework to assess and communicate the environmental and climate performance of construction products in the EU single market. Further details on alternative construction materials and whole of life analysis are explored in chapter 13.

14.4 2025 and 2030 KPIs

14.4.1 Measures to Deliver Required Abatement

Table 14.5 – Key Metrics to Deliver Abatement in the Residential Sector

Theme	2025 KPI	2025 abatement (vs 2018) MtCO ₂ eq.	2030 KPI	2030 abatement (vs 2018) MtCO ₂ eq.	2031-2035 measures
Standards and Regulations	All new dwellings designed and constructed to NZEB standard. 170,000 ¹⁰⁵ new dwellings using heat pumps	0.3 ¹⁰⁶	All new dwellings designed and constructed to Zero Emission Building (ZEB) standard. 280,000 ⁶ new dwellings using heat pumps	0.4	Minimum Energy Performance Standards for all dwellings
National Residential Retrofit Plan	Equivalent of 120,000 dwellings retrofitted to BER B2 cost optimal 45,000 existing dwellings	0.9 ¹⁰⁷	Equivalent of 500,000 dwellings retrofitted to BER B2/cost optimal	2 ¹²	Increased number of dwellings retrofitted and using heat pumps in line with activity by 2030

¹⁰⁵ Based on Housing for All Projected Housing Output

¹⁰⁶ Measures related to new homes are calculated to prevent growth in emissions by 0.3 Mt in 2025 and 0.4 Mt in 2030 relative to business-as-usual projections. These measures do not however provide any additional abatement impact vs. 2018 emissions.

¹⁰⁷ This is the sum of emissions savings due to retrofit works supported by SEAI schemes and local authority retrofit schemes (ca. 0.4 Mt by 2025 and 1.6 Mt by 2030) and small, decentralised improvements made by homeowners independently of the SEAI schemes (ca. 0.5 Mt by 2025 and 0.4 Mt by 2030).

Theme	2025 KPI	2025 abatement (vs 2018) MtCO ₂ eq.	2030 KPI	2030 abatement (vs 2018) MtCO ₂ eq.	2031-2035 measures
	using heat pumps		400,000 existing dwellings using heat pumps		
Decarbonisation of Residential Heating	Up to 0.7 TWh of district heating	0.2	Up to 2.5 TWh of district heating	0.6	Continued expansion to ensure heating is supplied by district heating networks
	Up to 0.4 TWh of heating provided by renewable gases to be delivered through agriculture-based supply chains	0.1	Up to 0.7 TWh of heating provided by renewable gases to be delivered through agriculture-based supply chains	0.1	Focus on ensuring alignment of use of renewable gases
	Reduction of demand due to energy efficiency responses to mitigate reliance on fossil fuels ¹⁰⁸	0.7	Reduction of demand due to energy efficiency responses to mitigate reliance on fossil fuels	0.4	Embedding of sustained reductions in household heat demand

¹⁰⁸ Additional abatement associated with fossil fuel price and supply effects may not be embedded in household heat demand over the longer term and will require successful implementation of policies and measures to sustain reduced demand. Ongoing monitoring of demand / consumption will be required to assess the need for changes to existing measures or the introduction of additional measures to sustain reductions in energy consumption.

Theme	2025 KPI	2025 abatement (vs 2018) MtCO ₂ eq.	2030 KPI	2030 abatement (vs 2018) MtCO ₂ eq.	2031-2035 measures
Total Estimated Abatement Potential		2.2		3.5	

Table 14.6 – Key Metrics to Deliver Abatement in the Commercial/Public Sector

Theme	2025 KPI	2025 abatement (vs 2018) MtCO ₂ eq.	2030 KPI	2030 abatement (vs 2018) MtCO ₂ eq.	2031-2035 measures
Standards and Regulations	All new buildings designed and constructed to NZEB standard and using renewable energy sources	N/A ¹⁰⁹	All new buildings designed and constructed to ZEB standard	N/A	Minimum energy performance standards for all commercial and public buildings
Decarbonisation of Public and Commercial Heating	Up to 0.1 TWh of district heating	0.03	Up to 0.2 TWh of district heating	0.04	Continued expansion to ensure heating is supplied by district heating networks
	Support public and commercial buildings to	0.4	Support public and commercial buildings to	0.7	Increased number of buildings with installed heat

¹⁰⁹ Additional abatement arising from application of NZEB and ZEB standard comes from heat pump installation in new commercial and public buildings. No additional savings are recorded relative to 2018 emissions.

Theme	2025 KPI	2025 abatement (vs 2018) MtCO ₂ eq.	2030 KPI	2030 abatement (vs 2018) MtCO ₂ eq.	2031-2035 measures
	deliver savings of 375 KtCO ₂ e.		deliver savings of 735 KtCO ₂ e.		pumps or connected to district heating, in line with levels of deployment activity during 2026-2030
	Up to 0.2 TWh of heating provided by renewable gases to be delivered through agriculture-based supply chains	0.04	Up to 0.4 TWh of heating provided by renewable gases to be delivered through agriculture-based supply chains	0.1	Focus on ensuring alignment of use of renewable gases
Total Estimated Abatement Potential		0.47		0.84	

To meet the required level of emissions reduction, by 2025 we will:

Residential

- Complete the equivalent of 120,000 residential retrofits, including 45,000 using heat pumps, to achieve a B2 BER /cost optimal level
- Implement the recommendations of the report of the District Heating Steering Group to supply up to 0.7 TWh of district heating to decarbonise residential heating
- Develop the appropriate policies and safeguards, as set out in chapter 16, to supply up to 0.4 TWh of biomethane to decarbonise residential heating

- Publish a new National Policy Statement on Heat to guide the Government's overall response to the National Heat Study across all sectors, which will also take into account the need for a medium-term pathway for the phase-out of fossil fuel boilers
- Develop legislation to underpin the structures necessary to roll out district heating, thereby accelerating the transition to renewable heat
- Introduce a Renewable Heat Obligation
- Support homeowners to reduce and manage their energy demand through measures, including information campaigns, the rollout of smart meters, and the availability of grants for heating controls
- The Department of the Environment, Climate and Communications (DECC) will develop legislation and regulation to support the geothermal energy sector

Commercial/Public

- Support the delivery of emissions savings of 375 KtCO₂e. in commercial and public sector buildings
- Implement the recommendations of the report of the District Heating Steering Group to supply up to 0.1 TWh of district heating infrastructure to decarbonise heating in commercial and public buildings, including a mandate for public sector bodies to connect to district heating, where possible
- Through the public sector working group under the Heat and Built Environment Taskforce, support public sector portfolio managers in developing and refining Building Stock Plans for their building portfolio, to determine optimum management of property portfolios for decarbonisation
- Commence the installation of rooftop solar PV in schools
- Promote and support building automation and control optimisation and smart building technologies to increase energy efficiency
- Promote the monitoring and upgrade of existing building energy management systems to high efficiency and zero-carbon equivalents

To meet the required level of emissions reduction, by 2030 we will:

Residential

- Complete the equivalent of 500,000 residential retrofits, including 400,000 heat pumps installed in existing buildings, to achieve a B2 BER/cost optimal or carbon equivalent, as part of the National Residential Retrofit Plan
- Implement the EPBD's ZEB standard for all new dwellings

- Supply up to 2.5 TWh of district heating to decarbonise residential heating
- Supply 0.7 TWh of biomethane to decarbonise residential heating
- Continue to support homeowners to reduce and manage their energy demand

Commercial/Public

- Implement the Energy Efficiency First Principle under the updated Energy Efficiency Directive
- Scale up existing business and public sector retrofit supports
- Support the delivery of emissions savings of 735 KtCO_{2e}. in commercial and public sector buildings
- Supply 0.2 TWh of district heating infrastructure to decarbonise heating in commercial and public buildings
- Implement the EPBD's ZEB standard for all new commercial and public buildings
- Scale up retrofit programmes to support the deep retrofit of buildings owned by public bodies
- Prioritise the installation of solar PV on public buildings, such as schools
- Develop the appropriate policies and safeguards to supply biomethane for use in commercial and public buildings of up to 0.4 TWh
- Develop appropriate policies and regulations for large scale geothermal heating/cooling for commercial and public buildings
- Implement Public Sector Building Stock Plans and continue the phasing out of fossil fuels
- Continue to support the commercial and public sectors to reduce and manage their energy demand on an ongoing basis through behavioural actions, energy awareness actions and light retrofit measures

14.4.2 Measures to Deliver Sectoral Emissions Ceilings

All new buildings are now built to NZEB performance requirements. Consequently, the main challenge now lies with decarbonising our existing building stock. The National Residential Retrofit Plan, first published in Climate Action Plan 2021 (CAP21), sets out how we will achieve our national residential retrofit and heat pump targets. The residential retrofit programme will be complemented by other measures, such as the deployment of low and zero carbon heating through district heating and renewable gases and promoting retrofit for all buildings.

The National Heat Study indicates that although rapid decarbonisation is imperative, some consumers are likely to continue to choose fossil fuel technologies, even with increased fossil fuel prices. We will continue to strengthen our regulation of heat sources, and our awareness raising activities, to make low and zero carbon sources more accessible to the end-user. A National Policy Statement on Heat will guide the Government's overall response to the National Heat Study across all sectors and will be underpinned by the Renewable Heat Obligation.

The integration of smart technologies and energy technology infrastructure as part of the upgrade of existing heating and cooling systems will play a significant role in reducing the overall energy requirements of buildings. Initiatives such as the ongoing *Reduce Your Use* energy efficiency campaign are playing a key role in helping consumers to reduce energy demand with simple and easy-to-implement advice.

Our ambition now is to leverage the capabilities of smart meters in conjunction with other smart building technology and renewable energy infrastructure, to provide benefits for indoor climate conditions, energy efficiency and demand flexibility. Almost nine in ten people are already taking steps to reduce the amount of energy used in the home by adjusting heating control settings. Additionally, 59% of Irish people have already reduced the amount of energy they use during peak time, with a further 23% planning to do so in the future⁹⁶.

To meet our climate ambitions for the built environment, the SOLAS Report on the *Analysis of Skills for Residential Construction and Retrofitting 2023-2030*¹¹⁰, indicates a need for 50,831 new entrants into the construction sector, from professional, craft, operative and other trade routes. The Expert Group on Future Skill Need's *Skills for Zero Carbon* report outlined that the retrofit programme alone would require the workforce to increase from 3,990 full time equivalents in 2021 to at least 17,400 in the coming years. A growing workforce will also need to be supported by increased training provision across the tertiary education system, with the overall framework provided through the SOLAS *Green Skills for FET Roadmap 2021-2030*, launched during 2022. In higher education, a range of courses in construction and green skills are being supported through Springboard+ and the Human Capital Initiative Pillar 1.

¹¹⁰ <https://www.gov.ie/en/publication/10a66-report-on-the-analysis-of-skills-for-residential-construction-retrofitting-2023-to-2030/>

Following the establishment of a national network of NZEB/Retrofit Centres of Excellence, in the Education and Training Boards (ETB) sector, there has been significant progress in the delivery of NZEB/ retrofit training. Five centres currently provide over fifty free and flexible upskilling and reskilling programs. There were over 3,300 enrolments in courses offered by these centres between January and October 2023, a significant increase on the 2,034 enrolments during 2022. The system has the capacity to deliver even more training, with six Centres of Excellence now open. Initiatives such as Laois Offaly ETB's mobile NZEB rig, which travels to schools and construction sites to promote NZEB training, are encouraging further participation among school leavers and construction workers. In 2023, there has also been a record number of women enrolled in NZEB/retrofit training, with an increase of 2% over 2022.

14.4.2.1 Residential Sector

Standards and Regulations

Fossil fuel heating systems have been effectively phased out as the main heating system in new dwellings, through progressive improvements in the Building Regulations, and replaced by renewable heating systems such as air source heat pumps. It is planned to implement a similar phase out of fossil fuel boilers in existing dwellings through performance-based regulations based on cost optimal calculations for existing buildings undergoing major renovation (where more than 25% of the external surface of the building is renovated). It is intended that the minimum energy performance requirements for new and renovated buildings will be further updated in line with updated cost-optimal calculations. These measures will also further strengthen the performance requirements for major renovations to existing residential buildings.

To support this ambition, we will continue to drive the development of the supply chain for heat pumps so that the technology will become the default solution (for householders outside of a district heating network), along with necessary building insulation upgrades when choosing a new heating system in the coming years.

Standards and certification schemes have value in terms of providing best practice, and in facilitating knowledge transfer and up-skilling. The National Standards Authority of Ireland (NSAI) has recently compiled and made available codes of practice for the Irish retrofit

sector, which have been published in the form of the S.R. 50 series of Irish Standard Recommendations.¹¹¹ This new collection of standard recommendations covers water-based heating systems in dwellings, thermal solar systems, and heat pump systems in dwellings; with S.R. 55 covering solar PV micro-generators for dwellings. In addition, NSAI is undertaking the revision of S.R. 54 Code of Practice for the energy efficient retrofit of dwellings which will support the delivery of abatement in the residential sector. The Department of Housing, Local Government and Heritage, in conjunction with the SEAI, is working with professional bodies, such as Engineers Ireland, the Royal Institute of Architects of Ireland and the Society of Chartered Surveyors Ireland to develop a series of continuing professional development modules on the retrofit of traditional buildings for delivery to construction professionals in early 2024.

Roadmap for the Phase out of Fossil Fuel Boilers

As well as taking action through the building regulations to end the installation of fossil fuel boilers in both new and existing residential buildings, we are committed to the wider phase out of fossil fuels for heating in all sectors and to putting in place the required supporting measures to achieve this. The roadmap will be informed by experience across the EU, and will produce a timeline with key actions and implementation measures to phase out fossil fuel use for the provision of all heat uses under 140°C. For context, industrial processes with high temperature demand require heat in the region of >200°C, with current heat pump technology capable of providing heat up to 140°C -150°C.

EU Legislation and Standards

We will continue to see the effects of high regulatory standards as new building construction gains momentum towards delivering the targets set out in *Housing for All*. As technology and construction are constantly evolving, policy and regulation will continue to change, setting high standards and targets in relation to construction and materials to ensure that we can achieve a climate neutral built environment by 2050.

The review of the EU EPBD, currently under negotiation, contains proposals to include:

- A new ZEB standard which does not cause any on site carbon emissions from fossil fuels;

¹¹¹ <https://www.n sai.ie/about/news/ministers-coveney-and-richmond-launch-retrofit-standards-collection/> ; https://shop.standards.ie/en-ie/standards/s-r-50-retrofit-collection-2021-1333130_saig_nsai_nsai_3293128/%C2%A0

- The inclusion of a Declaration of Global Warming Potential on Building Energy Rating Certificates;
- The introduction of Minimum Energy Performance Standards;
- Mandatory installation of rooftop solar panels on certain building types, subject to technical, economical and functional feasibility;
- A rescaling of the existing BER scale, and provisions around the making available of BER information to various stakeholders.

The recast Energy Efficiency Directive further drives energy efficiency ambition for 2030. It includes a requirement to cut energy demand significantly and will require all energy using sectors to play their part. The Directive also includes a legal requirement to implement the Energy Efficiency First Principle as Government policy.

Similarly, the updated Renewable Energy Directive will raise the 2030 binding target for renewable energy in the EU's final energy consumption from the current target of 32% to 42.5% with an indicative top up of 2.5%. The updated Directive will also strengthen the sectoral provisions to achieve this new target. Specifically, the basis of the target for renewable heat (or RES-H) will change from being indicative to binding, and this requirement will underpin the delivery of progress towards the built environment sectoral emissions ceilings.

Update to the National Residential Retrofit Plan

The National Residential Retrofit Plan, published as part of the CAP21, sets out how the Government will deliver on the targets of retrofitting the equivalent of 500,000 homes to a Building Energy Rating (BER) of B2 or cost optimal and installing 400,000 heat pumps in existing homes to replace older, less efficient fossil fuel heating systems by the end of 2030.

The plan is designed to address barriers to retrofit across four key pillars: (i) driving demand and activity; (ii) financing and funding; (iii) supply chain, skills and standards; and (iv) governance. For each pillar, barriers were identified, and time-bound policies, measures and actions were put in place to address them. Updated National Residential Retrofit Plan actions are published each year as part of the Climate Action Plan.

Data from the Climate Conversations indicates that the majority of Irish people (73%) understand the importance of retrofitting their homes to deliver on climate action. Two thirds of people have improved their attic insulation and the same proportion have improved their home insulation. Awareness of grants and supports for retrofitting is high, also at 66%.

The policies and measures introduced under the National Residential Retrofit Plan have driven a significant increase in delivery. Last year, under the SEAI residential and community schemes:

- 27,200 home energy upgrades were supported, which represents a 79% increase year-on-year;
- 4,438 homes were delivered across the energy poverty schemes which represents an increase of 85% year-on-year;
- 8,481 homes were upgraded to a post works BER or B2 or better in 2022, representing a 95% increase year-on-year.

This strong delivery has continued into 2023 and it is expected that the overarching target of 37,000 home energy upgrades will be exceeded. However, further policies and measures will be required to build on this progress in order to achieve, on average, the equivalent of 75,000 BER B2 upgrades per year between 2026 to 2030. This continued scaling up of activity represents an ongoing and unprecedented challenge. In the immediate term, actions to drive increased delivery of heat pumps and deeper energy efficiency upgrades are needed. The actions included in this year's Retrofit Plan build on the progress made in 2022 and 2023 using the same "four pillar" approach.

In October 2023, the Government and the European Investment Bank (EIB) Group reached an agreement that paves the way for Government-backed low-interest home energy upgrade loans. Homeowners will be able to borrow up to €75,000 on an unsecured basis for up to 10 years, at interest rates lower than current market rates. The loans can be used for energy efficiency and renewable energy upgrades where those works are being grant-aided by the SEAI. Homeowners will be able to apply for the loans by early 2024 and further details on the loans will be available at that point.

Addressing the Rental Sector

In the rental sector, the incentives to invest in energy efficiency upgrades are misaligned between landlords and tenants, which impacts negatively on the energy performance of the sector. *Housing for All* commits the Government to acting in this area. This ‘split-incentive’ issue within the residential sector is being examined by the Economic and Social and Research Institute (ESRI), which will report in 2024. We will address the findings of that research, where appropriate, in future Climate Action Plans. The Finance Act 2022 legislated for a new tax deduction of up to €10,000 per property for small-scale landlords who undertake retrofit works while the tenant remains in situ. The tax deduction is in addition to the SEAI grants and is conditional on the landlord having claimed an SEAI grant for the retrofit works.

District Heating

District heating offers significant potential to supply low- and zero-carbon heat to homes, businesses and public buildings from a central source.

While the efficiencies of district heating in the heat sector are widely understood and accepted – there are tens of millions of district heating customers across Europe – it remains the case that there is currently one small scale district heating scheme operational in Ireland in Tallaght, with a number of smaller, communal schemes also operational.

While the National Heat Study identifies that approximately 50% of the heat demand in Ireland can be met through district heating, such a proliferation will require significant resources to install a pipe trench network of approximately 1,000km along Irish roads to move the heat from central sources of heat to the buildings along the network that will utilise the heat. Significant financial resources will also be required to support such networks, at an estimated overall capital cost of €2.7 billion – €4 billion, with legislative and regulatory systems to underpin the sector to be developed.

While the work of the District Heating Steering Group has played a significant role in beginning this process, with Government deciding on a number of actions in July 2023 to develop the sector, it is clear that a significant ramp-up in deployment of district heating networks will continue to be required to 2030 to bring Ireland in line with the targets for this technology. Among the recommendations of the report of the District Heating Steering Group, published in August 2023 are:

- Drafting legislation to underpin the sector, and regulatory provisions to enable customer protections, and licensing and consenting provisions for district heating operators;
- Mandating that public sector buildings connect to available district heating networks (where available, and where technically and economically feasible), and that industrial facilities supply waste heat to district heating where the total rated energy input is at least 1 MW;
- Providing for a single technical standard that facilitates the growth and strategic interconnectivity of district heating systems and makes provision for State ownership of district heating infrastructure in the longer term;
- A centrally-planned approach to development of the district heating sector with, in time, a single State entity or a utility overseeing the development and expansion of networks, providing the skillsets, expertise and knowledge required by project sponsors in the short term;
- Predominantly market based district heating systems, with the provision of supports (such as domestic connections to a network) consistent with other decarbonised heat sources.

These actions are underway and projects such as the Dublin District Heating Scheme can now envisage, with the momentum at political and policy level, a route to delivery of heat to customers.

Biomethane

The primary objective of the National Biomethane Strategy is the delivery of the ambitious target of producing 5.7 TWh of indigenous biomethane by 2030. This Strategy will identify the sectors in which biomethane could bring the most benefit in terms of decarbonisation, and it will be critical that biomethane resources are principally used in those sectors where no alternative decarbonisation options exist. However, it is likely that biomethane will be injected into the grid and a percentage of that renewable gas could contribute to the decarbonisation of the built environment.

Before Ireland is in a position to produce indigenous biomethane at the scale required, it is a sector that will, similar to district heating, require considerable capital outlay, along with the development of necessary policy and regulatory supports. At present, there are a small number of AD plants producing biomethane in Ireland. It is also the case that plants currently in their development stages may encounter a range of challenges, not least when seeking

permissions and licences – the National Biomethane Strategy will look to identify and make recommendations to resolve matters such as these.

Geothermal Energy

Geothermal energy is a clean, local, secure and renewable source of heating and cooling that is growing in popularity across the EU. The National Heat Study (SEAI, 2022) outlines the significant potential of Ireland’s geothermal energy resources to decarbonise our heat sector, through both district heating and ground source heat pump applications. Ireland’s shallow geothermal energy resources are well understood and over 94 % of the country has suitable subsurface conditions for ground source heat pumps. Our deep geothermal potential, although recognised as significant, is less well defined and resource mapping exercises are being undertaken by DECC.

The *Policy Statement on Geothermal Energy for a Circular Economy* was published in July 2023. It aims to promote the sustainable development of Ireland’s geothermal resources in support of Ireland’s climate action commitments by setting out:

- The preferred approach to regulation;
- The scope of a strategy to promote the sustainable development of Ireland’s geothermal resources to decarbonise the heating and cooling of buildings and for industrial uses and power generation.

DECC has commenced work on the detailed research, design and stress testing of the proposed regulatory approach. DECC will continue to engage with stakeholders in that work, including industry and the Geothermal Energy Advisory Group. The members of the advisory group are drawn from the environmental, geoscientific, industry and social pillars, as well as Government Departments and regulators. DECC intends to publish a General Scheme of a Bill to provide the necessary legislative basis for the regulatory framework by Q4, 2024.

14.4.2.2 Commercial and Public Sectors

The decarbonisation solutions that are applicable to the residential sector, must also be harnessed by the commercial and public sectors to decarbonise their building stock. Compliance with the sectoral emissions ceiling for commercial and public buildings can be achieved only by considering changes in building fabric, heating systems, minimum equipment efficiencies and smart technologies.

Standards and Regulations

The strengthened standards flowing from new EU legislation described above will also apply to the commercial and public sectors. The Energy Efficiency Directive requires the Energy Efficiency First Principle to be applied when facing decarbonisation challenges. The application of the principle prioritises saving and conserving energy to the greatest extent possible ahead of generating additional energy. It applies to all sectors.

NZEB Regulations introduced in 2017 have helped to improve the quality of new buildings in the commercial and public sector. Under the recast Energy Performance of Buildings Directive, which is currently being finalised at EU level, standards for new builds will be further strengthened and minimum energy performance standards for existing non-residential buildings will be introduced. Solutions such as efficient district heating networks and biomethane will support the decarbonisation of our commercial and public sector building stock in particular areas, or where electrification is not the most cost-effective intervention such as in relation to traditional and heritage buildings.

Decarbonising our Commercial Buildings

There are an estimated 124,000¹¹² buildings in the commercial sector in Ireland with the largest numbers being offices and retail outlets. It is estimated that 29 % of commercial buildings in Ireland also incorporate a level of residential use with the remaining 71 % being exclusively commercial. An estimated 38 % of the commercial building stock in Ireland consists of standalone buildings with the majority of buildings attached to one or more other buildings. It is estimated that almost half of commercial buildings are owner occupied with the remainder leased. The split incentive issue (i.e., between landlord and tenant) can act as a disincentive to decarbonisation.

The decarbonisation of existing commercial buildings, including offices, hotels and retail units, remains a significant challenge. The installation and utilisation of heat pumps and the removal of fossil fuel heating systems in suitable commercial buildings continues to be a policy priority and is one of the most significant actions a commercial building manager can take in decarbonising the building and business.

¹¹² <https://www.seai.ie/publications/Extensive-Survey-of-Commercial-Buildings-Stock-in-the-Republic-of-Ireland.pdf>

A detailed Roadmap for Decarbonising the Commercial Built Environment is being developed by the Commercial Built Environment Working Group (CBEWG) that has been established under the Heat and Built Environment Taskforce.

This roadmap will set out the key existing and new policy interventions to reach the targeted level of abatement from our commercial building stock. It will detail financial, technical and advisory services (including the State supports available), finance models, technical and informational barriers, and potential innovation opportunities.

The CBEWG has identified its priority areas of work for 2024 and these include:

- Developing a voluntary code of conduct for commercial tenancy or lease agreements that promotes reduced carbon emissions from commercial businesses, and identifies opportunities to align incentives for both the property owner and tenant that will better unlock environmental performance;
- Developing a communications plan and identifying resources to raise awareness on climate and business issues to inform businesses and their commercial landlords of the decarbonisation opportunities, and regulatory requirements up until 2030 and beyond;
- Identification of any skills gaps in the skills needs of the CBEWG and confirming additional priorities or actions with training providers;
- Reviewing business supports available to the CBEWG and identification of any gaps, including comparison with supports available in other countries.

Identified supports will be delivered through the SEAI and the enterprise development agencies and will include consideration of requirements arising from planned recast EU legislation. The SEAI will produce sector-specific documentation giving practical advice around approaches to retrofit which shall be available online but may also be distributed via existing networks within each sector. These resources will be promoted and explained through the existing educational and promotional section of the business team as part of ongoing webinars and other potential engagement opportunities with the different sectors and their associated bodies.

Existing supports for the decarbonisation of this sector include:

- Assisting businesses to retrofit their premises and move away from fossil fuel heating sources, through funding, business supports and services such as energy audits, technical supports, training and advice and keeping these under review;

- Maintaining, reviewing and updating a regime of Accelerated Capital Allowances for energy efficient equipment, which is supporting the reduction of energy use in the workplace, and raising the awareness of energy efficiency standards in appliances and products;
- The Energy Efficiency Obligation Scheme (EEOS), where obligated energy companies, subject to various terms and conditions, can support energy users (financially or otherwise) to implement energy saving practices or to carry out energy upgrades on their properties. EEOSs can support all sectors – obligated energy companies are subject to sub-targets for residential retrofit (10%), energy poverty (5%) and the other 85% can be delivered across multiple sectors (commercial, industry, residential etc.).

The application of innovative approaches to not only replace fossil fuel technology but to maximise efficiencies in building operation will be important levers in this sector. This includes the use of smart technologies to monitor and optimise a building's energy performance. Installation of a building automation and control system is a requirement for particular buildings by the end of 2025 under the European Union (Energy Performance of Buildings) Regulations 2021 (S.I. No. 393 of 2021). An information campaign and further measures are planned for rollout to assist affected parties in the lead up to the regulatory requirement. Upgrading of existing heating systems to modern, variable, demand-driven and grid balancing equivalents can produce significant emissions savings.

Decarbonising our Public Sector Buildings

Ireland's public sector portfolio comprises almost 11,500 buildings that provide a wide variety of services to the public, including education and training buildings, hospitals and other health sector buildings, public sector offices, public libraries, public leisure centres, army barracks, courts, prisons and Garda stations. Many of these buildings provide services of a critical nature and must remain operational at all times. Responsibility for the management of public sector buildings is spread across several organisations, including large portfolio managers such as the Office of Public Works (OPW), the Department of Education, Local Authorities, the Health Service Executive (HSE) and the Department of Further and Higher Education, Research, Innovation and Science (DFHERIS)¹¹³ (as parent Department in relation to third level buildings owned/operated by Higher Education Institutions supported by capital investment from HEA, Further Education and Training building owned and operated by ETBs, supported by capital investment from SOLAS). The shared responsibility and

¹¹³ The majority of buildings in DFHERIS are not in direct ownership or control of that Department

variety of buildings in use adds additional complexity to the retrofit and decarbonisation of public sector buildings. The public sector building portfolio also includes some traditional buildings, many of which are of cultural and historical significance. Decarbonisation solutions such as geothermal energy, district heating and the use of renewable gases, when these solutions become available, may be appropriate for such buildings. For district heating, public sector customers could also provide an important anchor to projects, and Government has approved the drafting of legislation on district heating that will, inter alia, mandate connections by the public sector to district heating, when available to those buildings. However, there is no “one size fits all” solution to decarbonising public sector buildings.

The 2023 Public Sector Climate Action Strategy and updated Public Sector Climate Action Mandate guide public sector bodies towards achieving our overall ambition to reduce GHG emissions from the sector by 51 % relative to a baseline of 2016-2018. Specific requirements will continue to apply to schools, Local Authorities and to the Commercial Semi-State sector. Through an updated Public Sector Climate Action Mandate published with CAP23, the public sector will no longer install heating systems that use fossil fuels, subject to specific exceptions¹¹⁴. Under the Energy Efficiency Directive (Directive (EU) 2023/1791), there is a requirement for the public sector to achieve an annual absolute energy consumption reduction of 1.9 % and to renovate at least 3 % of the total floor area of buildings owned by public bodies each year, even as Ireland’s population and economy continue to grow with consequent impacts on the energy efficiency levels required. These requirements will be reflected in Ireland’s National Energy and Climate Plan to 2030 as well as in the Decarbonisation Roadmap being developed by the public sector working group under the Heat and Built Environment Taskforce.

A Public Sector Buildings Stock Decarbonisation Annual Planning Framework will set out ongoing public sector energy efficiency activities, as well as the pathways to achieve the sector’s energy efficiency and decarbonisation targets. The plan will identify core actions needed and provide the framework for delivering measurable sectoral energy efficiency and decarbonisation plans, with a robust basis in technical guidance. Areas expected to be addressed include the reuse and retrofit of buildings, rationalisation of property portfolios, the management of leased properties and acquisition of new properties, upskilling of staff, financing of the strategy, data-gathering and decarbonisation of heritage buildings.

A key deliverable that the SEAI is working on with public sector bodies is the development of a Public Sector Buildings Register to provide specific insights into which buildings are

¹¹⁴<https://www.gov.ie/en/publication/337b6-public-sector-climate-action-mandate/#public-sector-climate-action-mandate>

generating the most emissions and to inform the prioritisation and sequencing of capital investments for decarbonisation across the sector.

The SEAI and the public sector working group will work with national estate portfolio leads with responsibility for the largest buildings estates, including the HSE, OPW, the Department of Education, the Local Authorities and DFHERIS on the sequencing of investments.

Public bodies that are not national estate portfolio leads will continue to implement behavioural and operational energy efficiency measures in the buildings that they occupy, and to undertake light retrofit measures and include this information in their respective Climate Action Roadmaps.

The SEAI Pathfinder Programme, co-funded with building portfolio owners, provides capital funding for implementing building retrofit approaches in the public sector. The programme is targeted particularly at public sector portfolio managers, where retrofit activity can be coordinated centrally and is aimed at testing building retrofit approaches and developing a model that can be replicated and scaled across the wider public sector. A review of this programme was carried out in 2023 the learnings of the review will continue to inform decision-making on retrofit and decarbonisation options.

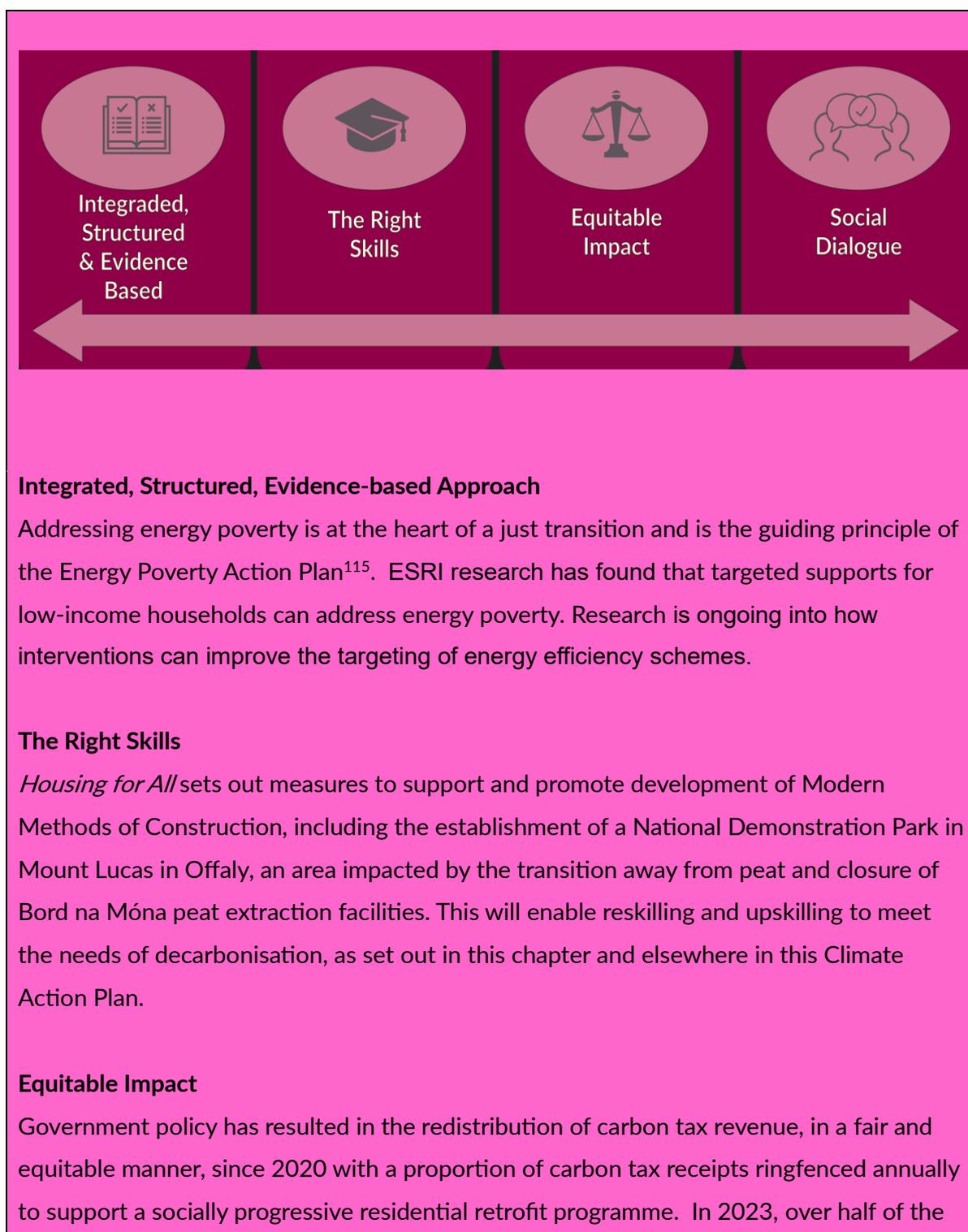
The SEAI public sector energy efficiency programme will be continued in 2024, including a specific “reduce your use” awareness campaign with associated actions for public sector bodies.

In addition to the SEAI Pathfinder Programme, a pilot programme to provide up to 6 kW PV panels to all schools is to be funded from the Climate Action Fund. This will assist with school energy needs and costs along with supporting the decarbonisation of our school buildings. This PV programme will form part of the response to meeting the 2030 and 2050 climate action targets for the schools sector.

14.5 Just Transition

The shift away from fossil fuel use in the built environment must be done in a manner that is consistent with the principles of a just transition, considering the needs of particular groups in society, and addressing energy poverty. This plan, therefore, includes a series of measures aimed at supporting those least able to afford to retrofit in private dwellings and commits to continue the existing programme of retrofits in our social housing stock.

Box 14.1 – Just Transition



¹¹⁵ <https://www.gov.ie/en/publication/159cb-energy-poverty-action-plan/>

Government's total annual retrofit budget is ring-fenced for fully funded upgrades through the Warmer Homes Scheme and the Social Housing Energy Efficiency Retrofit Programme. In 2022, 2,283 social homes were retrofitted by Local Authorities. The Communities Energy Grant Scheme promotes a just transition through cross-sectoral and community-oriented partnerships, aiming to achieve energy savings in various building types (public, commercial and community buildings). A new Solar PV Support Scheme for medically vulnerable households has also commenced.

Dialogue

In addition to ongoing dialogue through the National Dialogue on Climate Action, an Energy Poverty Stakeholder forum has been set up that provides an opportunity for dialogue and collaboration on the topic of energy poverty, identifying concerns of stakeholders and considering how best to tackle this issue.

14.6 Actions

Tables 14.7 and 14.8 set out the sector specific roadmap of actions to 2025 that will support the delivery of Ireland's carbon budgets and sectoral emissions ceilings. Table 14.9 and 14.10 specifically describes the actions for delivery in 2024. Where these actions are high-impact actions new to 2024, they are also included in the 2024 Annex of Actions. The 2024 actions within the Annex will be reported on quarterly by the Department of the Taoiseach.

Table 14.7 – Key Actions to Deliver Abatement in the Residential Sector for the period 2024-2025

Measure	2024 Actions	2025 Actions
Standards and Regulations	Development of regulations and DEAP to effectively ban fossil fuel boilers in new dwellings and those undergoing major renovation where practical	
Residential Retrofit	Pillar 1: Driving Demand and Activity	
	Provide a record budget allocation for SEAI residential and community energy upgrade schemes in 2024	Continue to implement SEAI schemes in line with budget allocation
	Support those least able to afford retrofit	Support those least able to afford retrofit
	Continue rollout of Social Housing National Retrofitting Programme with retrofitted properties required to reach BER B2 or equivalent and incorporating heat pump deployment targets	Continue rollout of Social Housing National Retrofitting Programme with retrofitted properties required to reach BER B2 or equivalent and incorporating heat pump deployment targets
	Pillar 3: Supply Chain, Skills and Standards	
	Support and accelerate the design, development and implementation of apprenticeships meeting green skills needs for the future	Continue to support and accelerate the design, development and implementation of apprenticeships meeting green skills needs for the future.

	Increase in learner activity in NZEB centres	Continue to provide courses across the six NZEB Retrofit Centres of Excellence
	Demand Reduction	
	Promotion of initiatives aimed at reducing residential energy consumption	Promotion of initiatives aimed at reducing residential energy consumption
	District Heating	
	Implement District Heating Steering Group recommendations, as approved by Government in July 2023	Progress District Heating Steering Group recommendations, as approved by Government in July 2023
	Centre of Excellence for district heating to be fully established within the SEAI to support all providers in its development	Centre of Excellence for district heating to be fully established within the SEAI to support all providers in its development

Table 14.8 – Key Actions to Deliver Abatement in the Commercial/Public Sector for the period 2024-2025

Measure	2024 Actions	2025 Actions
Commercial Sector	Commence the implementation of the Commercial Built Environment Roadmap (CBER)	Expand the implementation of the Commercial Built Environment Roadmap (CBER)
	Implement the SEAI non-Domestic Retrofit Scheme	Assess the SEAI non-Domestic Retrofit Scheme
Public Sector	Public Sector Building Stock Decarbonisation, Implementation and Co-ordination Plan	
	Continuation of public sector building stock decarbonisation within the Public Sector Building Stock Decarbonisation Annual Planning Framework	Continuation of public sector building stock decarbonisation within the Public Sector Building Stock Decarbonisation Annual Planning Framework
	Public Sector Retrofit	
	Develop a programme for the retrofit of traditional and historic buildings as part of OPW Pathfinder programme	Implement a programme for the retrofit of traditional and historic buildings as part of OPW Pathfinder programme
	Public Sector Leading by Example	
Develop pilot programme of solar PV provision in schools	Extend pilot programme of solar PV provision in schools	

Table 14.9 – 2024 Actions Built Environment (Residential)

Action Number	Action
BE/24/1	Development of regulations and DEAP to effectively ban fossil fuel boilers in new dwellings and those undergoing major renovation where practical

Action Number	Action
BE/24/2	Provide a record budget allocation for SEAI residential and community energy upgrade schemes in 2024
BE/24/3	Increase the number of registered One Stop Shops
BE/24/4	Increase the number of Sustainable Energy Communities
BE/24/5	Increase the number of BER assessors to 950
BE/24/6	Support those least able to afford retrofit
BE/24/7	Continue rollout of Social Housing National Retrofitting Programme with retrofitted properties required to reach BER B2 or equivalent and incorporating heat pump deployment targets
BE/24/8	Support and accelerate the design, development and implementation of apprenticeships meeting green skills needs for the future
BE/24/9	Increase in learner activity in NZEB centres
BE/24/10	Engagement of additional learners via the NZEB mobile unit
BE/24/11	Promotion of initiatives and initiatives aimed at reducing residential energy consumption
BE/24/12	Commence national level assessment of decarbonisation solutions
BE/24/13	Implement District Heating Steering Group recommendations, as approved by Government in July 2023
BE/24/14	Develop the planning and permitting frameworks required for the roll out of district heating
BE/24/15	Draft the General Scheme of a Heat Bill to establish a regulatory model for district heating that ensures consumer protection and the delivery of a vibrant district heating industry, and to mandate all Public Sector buildings and facilities to connect to district heating where available and technically and economically feasible
BE/24/16	Centre of Excellence for district heating to be fully established within the SEAI to support all providers in the development of district heating

Action Number	Action
BE/24/17	Publish general scheme of a bill to provide the legislative basis for the regulation of geothermal energy

Table 14.10 – 2024 Actions Built Environment (Commercial/Public Sector)

Action Number	Action
BE/24/18	Commence the implementation of the Commercial Built Environment Roadmap (CBER)
BE/24/19	Implement the SEAI non-Domestic Retrofit Scheme
BE/24/20	Continuation of public sector building stock decarbonisation within the Public Sector Building Stock Decarbonisation Annual Planning Framework
BE/24/21	Develop a programme for the retrofit of traditional and historic buildings as part of OPW Pathfinder programme
BE/24/22	Develop pilot programme of solar PV provision in schools
BE/24/23	Integrate learnings from exemplar buildings into new OPW projects

15. Transport

Key Messages

Sectoral Emission Ceilings

- Carbon Budget 1: 54 Mt CO₂eq.
- Carbon Budget 2: 37 Mt CO₂eq.
- Emissions Abatement (on 2018): 50%
- Emissions 2021-2022: 22.6 Mt CO₂eq.

State of Play/Trends in the Sector

- 2022 saw a 6% increase in emissions over 2021 levels, as the economy and transport demand continued to rebound following the lifting of public health restrictions and return to typical levels of transport activity
- 41.9% of the first sectoral carbon budget was expended in the period 2021-2022. While this level could be consistent with the sector being compliant with its carbon budget to 2025, a consistent decrease from the level of 2022 emissions is required in each year from 2023 to 2025 if we are to achieve this

Key Targets

- No change has been made to the key performance indicators provided in Table 15.5, which were provided in CAP23 to set out the level of change required to meet a 50% compliant pathway. Key targets include: 20% reduction in total vehicle kilometres travelled relative to business-as-usual, 50% reduction in fuel usage, and significant increases to sustainable transport trips and modal share. Fleet electrification and biofuels will continue to provide the greatest share of emissions abatement in the medium term

Measures and Actions

- The Avoid-Shift-Improve framework for transport sustainability was introduced in CAP23 and this approach has been applied again in CAP24 to categorise all actions. This framework emphasises the crucial role of spatial and land-use planning in designing transport systems that can support our net-zero ambition. The main work programmes and high impact actions are summarised in section 15.6

Expected Outcomes

- CAP24 adheres to the framework set out in CAP23 but makes some necessary refinements to that approach while taking into account the progress made so far in 2023. The expected outcome is that CAP24 will build on CAP23 in enabling us to meet the first and second carbon budgets

15.1 State of Play

15.1.1 Trends in the Transport Sector

The sectoral emissions ceilings agreed by Government set the required level of abatement to be achieved in the transport sector by 2030 at 50%. In quantitative terms, this legally binding target thus obligates the transport sector to achieve a reduction from its 2018 emissions baseline of 12.2 MtCO₂eq. to 6.1 MtCO₂eq. by 2030, and to do so in a manner that is consistent with a sectoral emissions ceiling of 54 MtCO₂eq. for the first carbon budget period (2021-2025), and a further reduced sectoral emissions ceiling of 37 MtCO₂eq. over the second carbon budget period (2026-2030).

Table 15.1 – Required Level of Decarbonisation for Carbon Budgets 1 and 2

Sectoral Carbon Budget 2021 to 2025 MtCO ₂ eq.	Cumulative Emissions to 2022	Remaining Sectoral Carbon Budget 2023 to 2025 MtCO ₂ eq.	Sectoral Carbon Budget 2026 to 2030 MtCO ₂ eq.
54	22.6	31.4	37

Table 15.2 – Required Level of Decarbonisation for the Transport Sector

2018 Emissions MtCO ₂ eq.	Indicative Target for 2025 Emissions MtCO ₂ eq.	Indicative Target % Reduction for 2025	2022 Emissions MtCO ₂ eq.	% Increase (+) / Reduction (-) to date
12.2	10	20%	11.6	-5%

At the midway point of our first carbon budget, the Environmental Protection Agency's (EPA) provisional emissions inventory for 2022 and its long-term projections reflect the continuing challenge and scale of the system and behavioural transformation required in transport to meet our emissions abatement targets.

While the structure for the sector's decarbonisation pathway set out in CAP23 was naturally skewed to deliver the greatest share of emissions abatement in the second half of this decade, the cumulative emissions over the first two years of the carbon budget programme (22.6 MtCO₂eq.) suggests that, at present, the transport sector is currently aligned to the required compliance pathway to 2025, with 41.9% of carbon budget 1 consumed over those first two years.

It is important to note however, that the sector's emissions were artificially depressed in 2021 as a continued legacy of Covid-19 public health restrictions, and transport emissions over both 2021 and 2022 have seen increases in emissions of approx. 6% per annum with the ending of pandemic restrictions and the return to pre-Covid levels of economic activity.

Though the overall emissions trend since 2018 is downward and 2022 emissions were 4.5% lower than 2018 levels, the scale of abatement required (5.2% p.a.) over the period 2023-2025 highlights the urgent need to reverse this recent rebound in emissions to avoid jeopardizing the sector's capacity to achieve its abatement pathway in future years.

Decoupling the direct correlation between transport emissions and wider social and economic activity thus forms the fundamental challenge for the sector. For this reason, the focus is on pursuing measures to address travel demand - in the first instance by pursuing policy measures that promote greater efficiency in our transport system, allied with significant investment in sustainable alternatives and incentives and regulatory measures to promote the accelerated take-up of low carbon technologies

While factors such as enhanced levels of blended and remote working that were established during the pandemic may have disrupted some linkages across transport and economic activity, the strong rebound in transport demand and associated 6% growth in transport emissions witnessed in 2022 reflects the rapid return to economic growth, full employment, and continued population growth in Ireland, following a prolonged period of artificially reduced activity.

Deepening our understanding of the potential economic impacts – both positive and negative – of various decarbonisation measures in transport, and ensuring that the correct balance is achieved, will continue to be a key consideration in policy and programme development. These economic considerations apply not only to specific measures, but also to the cumulative impacts of all measures given the highly integrated nature of the transport system. Naturally, the social impacts and implications in achieving a Just Transition will also be of paramount importance.

Table 15.3 – Latest GHG Emissions

Sector Emissions MtCO ₂ eq.	Share of Total GHG Emissions	Emissions tCO ₂ per capita
11.63	17.1%	2.28

Table 15.4 – Trends in GHG Emissions

Timeframe	Percentage Change	Absolute Change MtCO ₂ eq.
2018-22	-4.5%	-0.55

In the context that CAP23 was the first action plan which took the legally binding carbon budgets and established sectoral emissions ceilings into account, a significant change in transport policy approach was also set out therein – adopting and applying the AVOID-SHIFT-IMPROVE framework for greater transport sustainability, underpinned by detailed transport modelling and stakeholder consultation.

Table 15.5 again sets out the key 2030 metrics required to achieve our emissions targets, and these metrics were informed by a detailed programme of transport [modelling](#) undertaken with the National Transport Authority, on the level of change required to be delivered to achieve our 50% abatement ambition. As such, it is not currently expected that these targets will require significant change in future updates in the short- or medium-term, though the Department will continue to monitor trends and update its modelling where such corrective action is necessary.

This modelling leveraged the NTA's Regional Modelling System, which is underpinned by a National Demand Forecasting Model (NDFM) that accounts for projected demographic growth and spatial planning data. This is considered to be the most robust tool available to the Department of Transport capable of estimating overall emissions impact and the behavioral responses to potential interventions and policy measures at a national level.

15.1.2 Stocktake of Abatement Progress to Date and Corrective Actions Required

In terms of taking stock of abatement progress to date and in relation to whether any corrective actions are required, EPA projections (as shown below) have estimated a potential cumulative 5-year overshoot of approximately 1 MtCO₂eq. of the sector's first carbon budget by 2025 without further corrective action. Over this period, the capacity to deliver large-scale mitigation measures through the provision of new major public transport infrastructure and services, or through a significant shift of the vehicle fleet to zero-emission alternatives is limited. EPA projections for the second carbon budget period also suggest that this level of overshoot continues over the 2026-2030 period, leading to a cumulative projected deficit of approximately 5 MtCO₂eq. relative to the sector's 37 MtCO₂eq. carbon budget over 2026-2030.

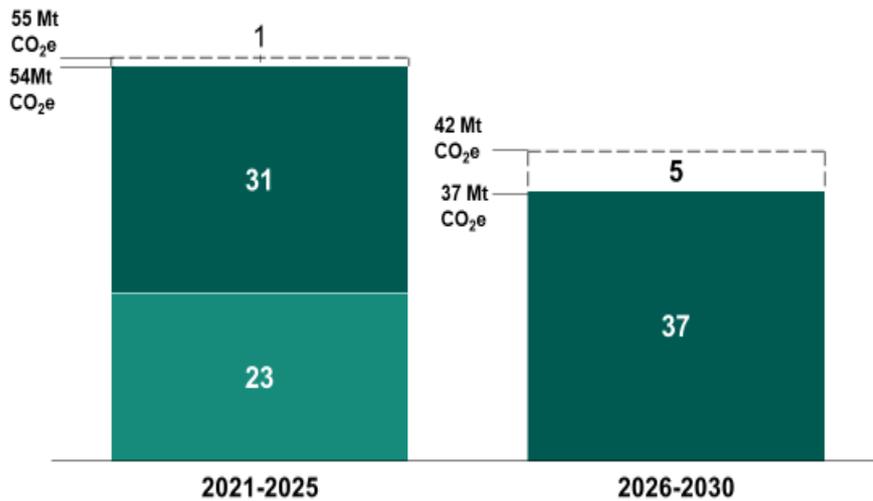
Figure 15.1 – Transport Sector Emissions Relative to the Sectoral Emission Ceilings and EPA’s ‘WAM’ Scenario Projections¹¹⁶

FIGURE MAY NOT SUM DUE TO ROUNDING



- WAM emissions
- Emissions remaining under SEC
- Emissions used under SEC

Transport sector SEC 2021-2025 and 2026-2030 and projected emissions in WAM scenario, Mt CO₂e



- The transport sector has SECs of **54 and 37 Mt CO₂e** for periods 2021-25 and 2026-30 respectively
- ~ **23 Mt CO₂e** of the transport 2021-2025 SEC were used in 2021-22, leaving ~**31 Mt CO₂e remaining for 2023-25**
- **EPA WAM** projects transport emissions to be ~**1 Mt CO₂e above** the transport SEC for 2021-25 and **5 Mt CO₂e** for 2026-30

Sources: Climate Action Plan 2023 (Govt of Ireland, December 2022); Ireland’s Greenhouse Gas Emissions Projections (EPA, June 2023).

Acknowledging that there is a significant difference in the modelling approaches between the two agencies, the Department of Transport will continue to engage with the EPA on differences between the EPA’s and National Transport Authority’s (NTA) projections, including through multi-stakeholder engagement with the Sustainable Energy Authority of Ireland. While a degree of divergence will always be expected between different models, it is expected that further work to align modelling and growth assumptions could result in closer agreement of current emissions projections. Nonetheless, it is also important to recognise that progress is being made in transport and to acknowledge positive signals across several areas.

¹¹⁶ A more detailed graphic regarding the Transport sector’s emissions relative to Sectoral Emission Ceilings and EPA projections is available in Appendix 1

In public transport, the NTA's Connecting Ireland Rural Mobility Programme is delivering new rural bus services in our towns and villages at a rate of approximately one new service every week, with over 110,000 weekly vehicle kilometres added to the public transport network in 2022 through new services, frequency enhancements and route extensions. As a result, over 50 settlements were newly connected to the public transport network, facilitating crucial access to health services, education and employment opportunities, and reducing reliance on unsustainable private transport.

As part of a package of cost-of-living support measures, Government introduced a 20% average fare reduction on Public Service Obligation (PSO) services, the first such reduction in 75 years, to help combat the rising cost of living, and to encourage and facilitate greater uptake of our public transport services. Over 328,000 young adults and students have benefitted from a further 50% reduction with the introduction of the Young Adult Scheme on PSO services in May 2022 and in September 2022 on participating commercial services. Patronage on the expanding network of Connecting Ireland and Local Link bus services, as well as average daily passenger numbers on bus and rail services have also seen exceptional growth and recovery from Covid-19, bucking international public transport trends experienced elsewhere.

The recent CSO Census 2022 data has also highlighted that while levels of transport demand have increased, there are encouraging changes in behavioural trends and an appetite for change when the right type of investments and decisions are made at local and national level, in particular with respect to reversing the trend in total share of children and young people being driven to school.

Irish drivers are also accelerating the switch to electric, with EV sales remaining ahead of our profiled trajectory to our 2025 targets, with over 100,000 EVs on our roads as of end-August 2023, and electric vehicle uptake can also be expected to be bolstered by significant expansions in our public charging infrastructure in coming years.

The EPA's data also highlights the increasing role of renewable fuels in transport, which saved an estimated 0.6 MtCO₂eq. of emissions in 2022. Regulations supporting a transition to up to 10% bioethanol fuel blending in petrol ([gov.ie/E10](https://www.gov.ie/E10)) came into force on 1 July 2023 in accordance with our Renewable Transport Fuel policy, and similar renewable transport fuel blending in diesel to deliver an equivalent 20% biodiesel blend by 2030 can also be expected to deliver greater levels of abatement in coming years.

2023 has also seen the publication of new national policies, plans and strategies as well as European initiatives under the Fit for 55 package that will bolster and reinforce our decarbonisation pathway. These include:

- Our National EV Charging Infrastructure Strategy and associated National En-route EV charging plan;
- A revised Greater Dublin Area (GDA) Transport Strategy;
- The Renewable Fuels for Transport Policy Statement 2023-2025;
- The roll-out and implementation of the first projects under our Sustainable Mobility Policy (SMP) Pathfinder Programme (including the first all-electric town bus service in Athlone);
- The launch of the 'Your Journey Counts' advertising campaign;
- The adoption of key EU files such as the Alternative Fuels Infrastructure Regulation, FuelEU Maritime and forthcoming ReFuelEU Aviation regulation that will enable further emissions abatement.

15.1.3 Managing Risks to Delivery

However, while progress is being made, there are significant internal and external risks and challenges to delivery which need to be acknowledged. Various challenges were recently noted by Government in the context of delivering public transport and active travel infrastructure, with similar challenges experienced across all abatement channels. These are

reflected below:

- ***Inflation and Exchequer Funding:*** Delivering the policies, services and infrastructure required to achieve emissions targets requires sustained and significant Exchequer funding across all areas; including public transport capital investment, enhancements in public transport service provision, EV charging Infrastructure, EV incentives, and improved active travel and public realm projects. Such state investment can achieve benefits beyond carbon abatement and must be considered in the broadest terms - including the counter-factual costs of inaction. As with all capital projects across Government, high levels of inflation (estimated up to 25%) have reduced the level of output that can be delivered for a fixed level of investment, including in the areas of Public Transport project delivery and active travel infrastructure. Increased inflation results in a re-baselining of forecasted project costs with obvious knock-on implications for National Development Plan (NDP) allocations which were set in 2021.
- ***Project Delivery Delays, including Planning:*** While progress is being made, there are several institutional processes currently impacting the delivery of transport infrastructure/services to provide more sustainable travel alternatives, including in the overall planning system, as well as stakeholder consultation and other necessary approvals / consenting processes.
- ***Public Service Obligation:*** Record capital investment in public transport infrastructure will need to be complemented by increased and expanded public transport services as supported under current funding through the Public Service Obligation (PSO) subsidy. A significant expansion of services is required to meet our NDP and CAP commitments, which coupled with inflation-driven contract increases, has meant a higher proportion of the PSO cost has been met by the Exchequer in recent years. To maximise the benefit of capital investment, the Department of Transport will continue its close engagement with the Department for Public Expenditure, NDP Delivery and Reform to align current funding requirements and fare revenue generation for services with the delivery of major infrastructure projects.
- ***Supply Chain Issues:*** Although recent supply chain issues - which arose from both the COVID pandemic and war in Ukraine - are less of an issue in 2023 than in recent years, the delivery of new bus and rail fleet, as well as the global EV supply chain, is still subject to some delays.

- **Public and Political Acceptance:** The political will and public acceptance for policies required to achieve a necessary reduction in carbon emissions, which in some cases require a fundamental level of individual and societal behavioural change, will continue to be a critical success factor out to 2030 and beyond.
- **Market Capacity and Skills:** Ireland, like many other economies, is experiencing a skills shortage in many areas. Examples include both the Local Government and Private Sectors, and range from infrastructure designers, consultants and construction specialists, to operatives, mechanics and public transport drivers. Such shortages, which are not unique to Ireland, inevitably impact the speed of infrastructure delivery (in both public transport and active travel) and the level of public transport services. There are also significant additional demands on transport agencies and local authorities to support the high level of ambition contained in this plan.
- **Charging Infrastructure and Renewable Transport Fuels:** There are a range of technical and supply chain risks to the roll-out of EV charging and alternative fuel supply and infrastructure – including high powered charging infrastructure - which must be closely managed in order to ensure achievement of our carbon emission reduction targets.

Addressing these risks and challenges requires a range of responses including a clear prioritisation of the demands being made on the system against their potential to contribute to the abatement targets set, along with a cross-Government partnership approach, involving relevant Departments, Local Authorities, industry, academia, and wider society. This collaborative system-wide approach is reflected in the membership and terms of reference of the structures established to steer delivery of the transport decarbonisation pathway (notably the Leadership Group for the Sustainable Mobility Policy, Zero Emission Vehicles Ireland (ZEVI), the Road Freight Forum, the National Steering Group for the Demand Management Strategy and the Inter-Departmental Group on Alternative Fuels for Transport) and the strong emphasis on regular public engagement and stakeholder consultation in the development of the associated policies. Consideration of the wider risks to delivery of the Climate Action Plan, across all sectors, is also a key aspect of the Climate Action Delivery Board role.

15.1.4 Critical Role for Public Sector and Local Authorities

As outlined in Chapter 10, the public sector also has a key leadership role to play, both in embedding climate action as a central value and objective across all its organisations, and as a catalyst for ambitious climate action across wider society.

Local Authorities (Chapter 19) are particularly critical to implementation and delivery in transport, owing especially to their role in the spatial and land use planning system, their capacity to promote and implement sustainable settlement patterns and compact growth and in supporting the delivery of EV charging infrastructure networks and other sustainable transport infrastructure, notably through sustainable parking policies the delivery of public realm improvements and reallocation of road space. They also play a vital role in providing leadership and supporting the engagement of communities to move toward more sustainable transport behaviours.

Local Authority capacity was recognised as a key delivery risk in the context of the Sustainable Mobility Policy (SMP) and associated Pathfinder Programme. To better understand the risk and identify potential mitigating actions, the Department of Transport has engaged extensively with Local Authorities in 2023. The output from this engagement was shared with the Department of Housing, Local Government and Heritage (DHLGH) in the context of considering broader policy supports for Local Authorities.

15.1.5 Climate Change Advisory Council Recommendations

The following textbox highlights key recommendations of the Climate Change Advisory Council (CCAC) for the transport sector, which have been considered in this annual CAP update. In its preamble to the recommendations for the Transport sector, the CCAC Annual Review 2023 welcomed the CAP23 introduction of the Avoid–Shift–Improve hierarchy for greater transport sustainability, which is retained in Climate Action Plan 2024 (CAP24). Specific references are made to these recommendations in the following measures section (15.2) where they are being addressed or taken into account. Some recommendations relate to policy areas covered in other chapters.

Climate Change Advisory Council Recommendations

1. Ireland's transport system needs to make accessible, sustainable transport modes more attractive and shift away from car dependency through consideration of the proximity between people and places in land use and housing policy.
2. The compact growth target in the current National Planning Framework is insufficiently ambitious to achieve the low-carbon transition in the transport sector. The review of the National Planning Framework needs to reassess how Ireland approaches compact growth (housing density) and how it is measured from a spatial perspective.
3. Poor economic incentives for urban brownfield/infill development need to be addressed in order to limit further urban sprawl, along with the development of improved incentives for urban living and the revitalisation of vacant urban buildings.
4. Urgent investment is needed to improve the accessibility and reliability of public transport services in addition to road space reallocation, along with a fully interactive app with improved data on bus reliability and capacity. The ongoing programme of Public Service Obligation bus fleet replacement and depot charging upgrades should be expanded and accelerated with a focus on the electrification of public transport to support air quality goals.
5. The Council recommends that choices need to be made now on the design and implementation of demand management measures through the development of the National Demand Management Strategy. This should use proven approaches to drive behavioural change such as road pricing (e.g. congestion charging, low-emission zones), parking restraints and fuel pricing. The TaxSaver commuter ticket scheme and the cycle to work scheme should be updated, alongside the implementation of Part 18B of the Finance Act (No. 2) of 2008 (Parking Levy in Urban Areas) in the major urban areas of Cork, Dublin, Galway, Limerick and Waterford.
6. The current reduction in school transport scheme fees and in public transport fares should be continued in Budget 2024. Access to school buses under the scheme should be significantly expanded. The Council recommends an

assessment of the impact to date of the reduction in public transport fares on emission reduction as an input to longer term fare strategy development.

7. Local Authority Climate Action Plan Guidelines should include specific actions and indicators in respect of accessibility, modal shift and active travel. The local authority of each city should introduce park and ride schemes along major arterial roads (by 1 January 2030), as well as produce (by 1 January 2025) and deliver (by 1 January 2030) a plan to reduce the number of public city centre parking spaces.
8. Motor tax should be recalibrated to promote resource and energy efficient vehicles and should escalate year by year. Vehicle Registration Tax percentage rates for all category A vehicles (EU category M1) bands, except the least-polluting band, should also increase.
9. Electric vehicles present a means of achieving significant reductions in emissions, particularly in rural areas, and improvements in the charging infrastructure and incentives for uptake are important measures in the short term. A policy for the roll-out of vehicle-to-grid-enabled electric vehicles with bidirectional home charging should also be urgently prepared.
10. It is recommended that the target for commercial electric vehicles should be increased to 150,000 by 2030 from the current target of 95,000 to support decarbonisation of commercial vehicle activity, with consideration of additional incentives to support adoption by businesses.
11. The Council welcomes work carried out in the last year to assess the challenges associated with biofuel blending and recommends continued assessment and transparent reporting in this area.
12. A national certification/accreditation system for eco-driving programmes as identified in the Road Haulage Strategy (December 2022) should be established immediately along with a policy for the development of freight consolidation centres. A step up in ambition is also required on the future role of Ireland's rail network in order to significantly increase the proportion of inland freight tonnage moved by rail.
13. Ireland needs to develop a strategy for increasing the share of sustainably sourced aviation fuels.

15.2 Measures to Deliver Sectoral Emissions Ceilings

This section describes the high-level measures and actions required to deliver the sectoral emissions targets for transport under the fifteen key work programmes identified in Figure 15.2, which reflect the key areas of focus identified in CAP23.

The proposed decarbonisation pathway has accounted for expected levels of demographic and economic growth, and the balance of work programmes is duly cognisant of potential adverse impacts on vulnerable cohorts in the AVOID/SHIFT/IMPROVE measures selected.

Figure 15.2 – CAP23/24 Work Programmes



Drawing upon the robust modelling, environmental and international evidence base and the extensive consultation undertaken to inform the design of the CAP23 pathway, implementation of these work programmes is considered to offer the best opportunity to comply with the sector’s carbon budget programme.

It is important to note all these decarbonisation channels combine to form a mutually reinforcing basket of measures which can achieve carbon abatement and enable the development of a sustainable economy. The emphasis will remain on a more focused and accelerated approach to the implementation of actions, where possible, to achieve the required rates of emissions abatement.

15.2.1 Horizontal/Cross-cutting

15.2.1.1 Enhanced Governance and Accelerating Implementation

As set out in CAP23, Government has established a number of climate delivery taskforces in key sectoral areas. The Sustainable Mobility Policy Leadership Group established in May 2022 holds oversight over the majority of AVOID+SHIFT elements of the sector's decarbonisation pathway (i.e., 10 of the 15 work programmes) and acts as the taskforce for the transport sector.

The active involvement of DHLGH, the Regional Assemblies, and Local Authorities as part of the SMP Leadership Group¹¹⁷ is critical to driving the required systems change aimed at better aligning transport and spatial and land use planning. A report on the first year of activity of the Leadership Group and implementation of the SMP Action Plan is summarised below.

National Sustainable Mobility Policy and Pathfinder Programme – Year One Update

The National Sustainable Mobility Policy (SMP), which was published in April 2022, sets out Government's strategic policy framework for supporting walking, cycling and public transport use in Ireland to 2030, laying the foundations for the required system change in transport that will help achieve net-zero emissions by 2050. It is accompanied by an Action Plan to 2025 aimed at expanding sustainable mobility options across the country, managing daily travel demand more efficiently, and reducing the journeys taken by private car.

The SMP Pathfinder Programme, which was launched later in the year (October 2022) consists of 35 exemplar transport projects and activities in 19 counties, with a strong emphasis on experimental and innovative approaches, to be delivered at pace by 2025. Many of the projects will incorporate aspects of road space reallocation, shared mobility, rural community-based transport solutions, behavioural change, and communications. They will also meet key criteria on issues such as health, well-being, place-making, permeability, and universal design.

¹¹⁷ Membership of this taskforce is composed of the National Transport Authority (NTA), Transport Infrastructure Ireland (TII), the regional assemblies (SRA, NWRA, and EMRA), City and County Management Association (CCMA), Department of Housing, Local Government, and Heritage (DHLGH), Department of the Environment, Climate and Communications (DECC), Road Safety Authority (RSA), Sustainable Energy Authority of Ireland (SEAI), as well as several Divisions of the Department of Transport.

The first year of action under the SMP also included the inaugural National Sustainable Mobility Forum held in Athlone over 19-20 April 2023, an annual event intended to reflect on progress and facilitate engagement between public, private, voluntary and industry representatives around sustainable mobility. Reports from the Forum are available [here](#).

The SMP Year One Progress Report ([link](#)) provides details of progress made to end April 2023, including 19% of actions completed with a further 58% ongoing and on schedule. The SMP 'Year Two' Progress Report will be published in summer 2024.

Similar collaborative cross-agency structures have been established to steer the other work programmes mentioned – including ZEVI, which is currently a Division of the Department of the Transport drawing on the combined expertise of the TII, NTA, ESBN and SEAI to deliver on the transport electrification targets in the CAP. A new interdepartmental group on Alternative Fuels for Transport will oversee the broad range of activities to encourage their use in the decarbonisation of the sector, acknowledging in particular the regulatory requirements arising from the EU 'Fit for 55' package of renewable energy and alternative fuel obligations – in land, aviation and maritime transport.

The Road Freight Forum established to support the implementation of the Road Haulage Strategy also focuses in particular on measures to decarbonise this hard to abate sector, while a cross-Departmental and multi-agency approach also underpins the membership and terms of reference for the National Steering Group which is overseeing the development of the National Demand Management Strategy.

15.2.1.2 Communications and Engagement Work Programme

Achieving a shift to transport modes with zero- or low-carbon emissions, such as active travel (walking and cycling) and public transport, requires unprecedented levels of public buy-in and engagement. In line with commitments under the SMP and CAP23, the Department of Transport is currently finalising a Climate Action and Sustainable Mobility Public Engagement and Communications Strategy.

The main objective of the Strategy is to build awareness and inspire ownership for action in individuals, private organisations, and public sector bodies, while also increasing support and acceptance for the delivery of critical infrastructure. The Strategy will embed findings from the Department's own stakeholder engagement, wider whole-of Government stakeholder workshops, and National Dialogue on Climate Action events held over the past

year, considering the transport sector's decarbonisation pathway and achieving a just transition.

This follows a key recommendation of the OECD Report on *Redesigning Ireland's Transport System for Net Zero* (published October 2022) in relation to a communication strategy to support of the transport system's transformation away from car dependence.

A key insight has been that there is no 'one size fits all' solution and that understanding of the local and regional needs of the impacted communities forms a critical element of successful schemes. This also highlighted the need for improved communication and engagement strategies at national and local level.

There are four key workstreams underpinning the Strategy which are described below:

- **Public Communications and Engagement**, including the multi-channel '*Your Journey Counts*' National Advertising Campaign which commenced in 2023, alongside various community & stakeholder engagement initiatives;
- **Local Authority Communications, Engagement and Sustainable Mobility Project Acceptance Supports**, comprising a full review of existing communications capabilities, delivery of Sustainable Mobility Policy Project Acceptance Comms & Engagement Supports, and supports for LA 5-year Climate Action Plans;
- **Car Advertising and Labelling review**, to provide policy recommendations and support for delivery of key actions;
- **Evaluation Framework and Research Support**, including a long-term behaviour and attitudes study to measure changing attitudes to sustainable mobility as the strategy is implemented.

Alongside this strategy, Zero Emission Vehicles Ireland (ZEVl) will also continue their information and engagement programme, including communication initiatives to support the achievement of our electric vehicle targets.

15.2.1.3 Road Haulage Strategy – Decarbonisation Programme

The heavy goods fleet comprises c.40,000 vehicles which are almost exclusively fuelled by diesel. While decarbonisation will remain a significant challenge for the sector over the medium term to 2030 and beyond, there are encouraging signals from vehicle manufacturers regarding the supply of alternatively fuelled vehicles, and in the growing drawdown of funding supports available under the Alternative Fuel Heavy Duty Vehicle scheme.

Ireland's [Road Haulage Strategy](#) (published December 2022) provides a roadmap as to how the Irish Government will support the Road Freight sector to decarbonise and meet the targets set out in the climate action plan. CAP23 included a new target for the sector following Ireland becoming a signatory in November 2022 to the Global MOU on Zero Emission Medium- and Heavy-Duty vehicles. This non-binding agreement targets 30 per cent of sales of new Medium- and Heavy-duty vehicles (trucks and buses) to be zero emission by 2030, increasing to 100 per cent of new sales in 2040.

A critical element in supporting the transition will be the provision of charging infrastructure for heavy-duty vehicles. In order to enable the delivery of this infrastructure, Zero Emissions Vehicles Ireland (ZEVI) has recently set out its draft National En-route EV Charging Network Plan which meets the requirements set out in the recently agreed Alternative Fuels Infrastructure Regulation (AFIR) and targets dedicated publicly accessible charging pools for HDVs of 3,600 kW at 60 km intervals on the core TEN-T network and of 1,500 kW at 100 km intervals across the comprehensive TEN-T network by 2030.

As a transitional measure, increasing the amount of renewable transport fuels (e.g., biodiesel) in the national fuel mix will provide a level of emissions savings from the existing fleet. Under the Renewable Transport Fuel Obligation, which is administered by the National Oil Reserves Agency (NORA), there is an obligation on suppliers of mineral oil to ensure that a percentage of the motor fuel they place on the market in Ireland is produced from renewable sources. In 2022, 7% of the diesel fuel supplied was from renewable sources and our intention is to increase the level of renewable fuel usage in transport such that we achieve an equivalent 20% biodiesel blend by 2030, a move which will help to significantly reduce emissions from the Road Freight sector.

Additionally, there is a full relief from the carbon component of Mineral Oil Tax for liquid or gaseous fuels that have been produced from biomass. This means that no carbon tax applies to biofuels, such as Hydrogenated Vegetable Oil or biomethane, used in any road vehicle, private or commercial. The carbon tax relief for biofuels is intended to promote a higher level of biofuel usage and supports the Government's commitment to incentivising

more environmentally friendly alternatives to fossil fuels. This means that, as annual increases in the carbon tax are implemented, the differential in tax costs between biofuels and fossil fuels will continue to widen, further incentivising the uptake of biofuels.

Eco-Driver training, which trains drivers to operate their vehicles in a safer and more eco-friendly manner, will be important in promoting decarbonisation in the road freight sector. This training, which has been proven to lead to a significant reduction in fuel consumption and related carbon emissions, not only benefits the environment, but it also improves road safety and generates cost savings and improved efficiencies for road freight operators. In line with the objectives of CCAC recommendation 6.12 in relation to establishing a certification / accreditation system for eco-driving, the Department of Transport is currently working towards establishing such a standard for eco-driving courses and will, in addition, analyse what incentives and measures could be introduced to increase the number of drivers undertaking available courses.

Further measures which have the potential to assist in the decarbonisation of the sector include a study to establish the potential for logistics consolidation hubs and the promotion of digital and operational efficiencies such as load sharing. Improving asset-sharing through digitalisation can result in more efficient use of vehicle capacity to reduce the number of kilometres operated with empty/part loads. A study to examine the policy options to reduce carbon emissions through these efficiencies and assess how they will play a role in Ireland's journey to net zero will be progressed in 2024. The study will also assess how state funding can play a role in developing and promoting these new ways of doing business.

As outlined further below, under the Demand Management Strategy work programme, a specific sub-group has also been established to develop measures that will support greater efficiencies in the freight sector. The All-Island Strategic Rail Review which has been published for public consultation as part of the Strategic Environmental Assessment process sets out further recommendations to increase the level of ambition for rail freight on the island, thereby contributing to the decarbonisation of the sector.

These include recommendations to develop sustainable solutions for first/last mile rail freight access for Dublin Port, reduce Track Access Charges for freight services; strengthen rail connectivity to the island's busiest ports; and to develop a network of inland terminals close to major cities on the rail network. Following finalisation of the SEA process, an implementation strategy to support agreed proposed recommendations of the Strategic Rail Review will be developed and submitted for approval to Government in the first half of 2024.

15.2.2 Avoid

15.2.2.1 Enhanced Spatial and Land Use Planning

Spatial planning and transport systems are fundamentally linked, with deeply embedded travel preferences and overall levels of transport demand resulting from choices with regard to settlement patterns and planning policy.

CAP24 describes the planning policy hierarchy which is applied at national, regional and local level. The first revision to the National Planning Framework (NPF) will provide the opportunity to consider strategic transport planning priorities in the context of strengthening policy alignment with the National Climate Objective, in the first instance, and with this Climate Action Plan.

The draft Sustainable and Compact Settlement Guidelines (SCSGs) for Planning Authorities¹¹⁸ sets a policy framework for the creation of sustainable and compact settlements comprising an integrated network of mixed-use neighbourhoods that offer improved access to services, amenities, and public transport in support of our transition to lower carbon living.

Parking policies play a key role in system design and influencing travel behaviours and these new guidelines have recommended a graduated approach to car parking for residential development that takes account of proximity to urban centres and sustainable transport options – with car parking ratios minimised, substantially reduced or wholly eliminated at locations that have good access to urban services and to public transport options.

The SCSGs will supplement other relevant guidelines generally that seek to reduce/minimise car parking rates. Broadly speaking, planning authorities should not require specific minimum levels of car parking with the exception of disabled parking for any type of development. At locations with good public transport, maximum levels for car parking provision should be applied. These principles are also being factored into the development of the National Demand Management Strategy. In addition, public authorities should transition towards market pricing of car parking which they provide to avoid subsidising car use.

¹¹⁸ The draft guidelines are currently being finalised with the intention to be published by the Minister for Housing, Local Government and Heritage in December 2023

A working group led by the Department of Transport and DHLGH is also identifying site-specific opportunities for Transport Oriented Development (TOD), which seeks to promote the siting, design and development of housing, employment and services in locations that can be well served by frequent and high-capacity public transport. The group has identified 14 optimum locations in Dublin that are proximate to existing or planned high-capacity public transport nodes and have the potential for comprehensive development or redevelopment. The group is looking for similar opportunities in the wider eastern region and in Cork, Limerick, Galway and Waterford. The outputs from this work will inform Government policy and initiatives to support TOD in Ireland.

15.2.2.2 Strategic Transport Planning

As set out in CAP23, integrated land-use planning and transport planning in our cities is also led through the Metropolitan Area Transport Strategies (MATS), which set out programmes and vision for sustainable transport investment and service enhancements across active travel, bus, light rail and heavy rail for each city over a 20-year period, and which are renewed as part of a regular 6-year cycle of review.

In the past year, new and revised MATS have been completed and published for the Waterford and Limerick-Shannon metropolitan areas, and the Greater Dublin Area, which reflect the latest policy commitments to reduce transport emissions by 50%, in accordance with the sectoral ceiling for the transport sector. Each update followed extensive public consultation and recognises the need to reduce high levels of car dependency in each of our cities and enhance the provision of sustainable alternatives.

Work is ongoing on the development of an updated Galway Transport Strategy, with a draft strategy intended to be published for public consultation and finalised in 2024, with the review and update of the Cork MATS (published 2020) to be the next MATS falling due for update as part of the iterative review cycle.

Outside the Greater Dublin Area, the MATS are currently non-statutory plans developed by the NTA in co-operation with the relevant Local Authorities and other Agencies. As committed to in CAP23, the Department of Transport intends to amend legislation to extend the remit of the NTA to the five cities, which will bring a coherent approach consistent with the Climate Action Plan objectives for transport. This potential transfer of functions will have due consideration of Government's commitment to establish a directly elected mayor for Limerick, and the recommendations of the Dublin Citizens' Assembly.

It is worth noting (per CAP23) that compliance with our sectoral emissions ceilings also requires transport planning and appraisal to prioritise interventions in line with the Sustainable Mobility Policy, and will to:

- Avoid stimulating or facilitating increased GHG emissions from transport, especially over the next 20 years;
- Support a shift to active travel and public transport, including by the reallocation of road space;
- Maintain our existing transport infrastructure; and
- Support the adaptation and resilience of existing, redesigned and new transport infrastructure to the impacts of climate change.

Transport infrastructure decisions and the revised appraisal processes will give effect to these priorities.

In line with these principles, our Transport Appraisal Framework (TAF) was updated in 2023 to enhance the consideration of climate change within the appraisal process for investments in our transport network. The TAF supports the implementation of the National Investment Framework for Transport in Ireland (NIFTI), at scheme level, by providing technical guidance on assessing project alignment with modal and intervention hierarchies, to support the assessment of the most sustainable and proportionate transport solution. A new assessment methodology, the Transport and Accessibility Appraisal (TAA) that is now included provides enhanced considerations of an intervention's impact on sustainable accessibility and GHG emissions.

Further modular updates to the TAF to enhance consideration of climate change within transport scheme appraisal (e.g., revisions to the shadow price of carbon) will be guided by the updated central Infrastructure Guidelines that are aimed to enhance project delivery for the National Development Plan.

15.2.3 Avoid and Shift

15.2.3.1 Demand Management Strategy

In CAP23, it was recognised that we must address the base demand for transport, and that strong strategic direction at a national level is required. To this end, work on the development of a new National Demand Management Strategy commenced in 2023. The Strategy, which is intended to be high-level in nature, will seek to identify and address any national barriers to implementation at a local level.

In that context, the Department of Transport has convened a cross Departmental / multi-agency steering group to oversee the development of the Strategy, with six sub-groups established comprising a diverse range of national and international experts from government, industry, representative bodies, and academia, among others to identify issues, potential measures and implementation pathways in the following key areas:

- Optimal Use of Space;
- Fiscal Measures;
- Generators of Demand (Education, Public Sector, Tourism and Sport);
- Generators of Demand (Freight, Industry and Retail);
- Integrated Land Use and Transport Planning;
- Captive Car Users.

As well as building on the recommendations from the Five Cities Demand Management Study, which was published in November 2021, potential measures will be informed by national and international best practice and will be considered according to their relative impacts in terms of demand reduction, road safety, economic opportunity, and wider health benefits from reduced air pollution and a more active population.

An important principle in the development of the Strategy is Just Transition and the recognition that the effectiveness and acceptability of demand restraint measures depend on the availability of quality public transport and active travel opportunities. The timing and sequencing of implementation will also be critically important in this context.

Subject to Government approval on the draft Strategy, there will be a public consultation in early 2024 with the aim of publishing a final Strategy in summer 2024. In parallel, the National Transport Authority will finalise a more localised Demand Management Scheme for the Greater Dublin Area in accordance with its commitments under the GDA Transport Strategy and the National Sustainable Mobility Policy. This process does not prevent various demand management measures from progressing, including road space reallocation and parking related measures for example.

15.2.3.2 Road Space Reallocation

Road space reallocation and a sustainable approach to parking policy are considered to form key measures to both reduce unsustainable private car demand and enhance placemaking, supporting improvements in the accessibility and air quality of our urban spaces. For Local Authorities, these are areas in which they have the capacity to directly

influence in the short to medium term, and which are strongly recommended for consideration in the development of their 5-year Local Authority Climate Action Plans, i.e., setting out sustainable approaches to on-street and non-residential parking and to road space reallocation.

Public authorities should work towards a reduction of on-street car parking spaces where it complements measures to prioritise active travel and public transport and to improve the public realm. Measures addressing car parking provision and management, both on-street and off-street, are also being considered as part of the development of the National Demand Management Strategy.

Here, the Design Manual for Urban Roads and Streets is the principal design standard for all urban roads and further work is underway in relation to guidance and advice notices for local authorities with regard to the reallocation of street-space and landscaping. This includes the issuing of Statutory Guidelines in accordance with Section 38 of the Road Traffic Act 1994, as amended, on traffic calming measures in respect of public roads under the charge of Local Authorities.

A trials procedure for traffic management measures that is intended to be supported by these statutory guidelines will enable particular proposals to be implemented on a temporary basis, for a defined period of time, allowing the impacts of the proposal to be monitored before a subsequent decision on whether the proposal should be implemented on a permanent basis.

Statutory guidelines have also issued to Local Authorities with regard to the development of their 5-year Local Authority Climate Action Plans, and further engagement on the development of their LA CAPs is planned through the CCMA and through the Department of the Environment, Climate and Communications and the Department of Transport, to ensure that transport-related metrics are embedded in these plans insofar as relevant, that the relevant policies and supports from central government are clearly identified, and to assist in the delivery of transport actions set out in the plans.¹¹⁹

¹¹⁹ Chapter 11 (11.2.1) of this Plan outlines the approach to the annual implementation of actions in the LA CAPS, tracking of progress through KPIs and reporting at local and national levels.

15.2.4 Shift

15.2.4.1 Active Travel Infrastructure and Accessibility Work Programme

The provision of safe and accessible walking and cycling infrastructure is key to encouraging modal shift away from private car use and towards walking and cycling. The role of local authorities in the development of active travel infrastructure cannot be overstated, and the increase in the capacity of active travel teams has already helped to deliver hundreds of kilometres of new and improved cycling and walking infrastructure around the country. Over 600 km of walking and cycling infrastructure has been delivered through the NTA's Active Travel Programme since 2020, with over 200 km of Greenway infrastructure also delivered.

It is important that this capacity remains within the local authorities to continue the high level of delivery going forward, and the Department of Transport will work with the Department of Housing, Local Government and Heritage to provide the necessary supports to local authorities to ensure this remains the case. It is critical that active travel infrastructure is implemented in a considered manner that has been informed by multi-criteria analyses that consider a range of factors including potential demand, safety, and social benefits. In this regard, two significant cycling strategies are due to be published that set out a cohesive cycling infrastructure network.

The National Cycle Network (NCN) will set out the inter-urban cycling network (approximately 3,500km) around the country linking urban centres, and this network will include many existing and planned Greenway routes. Delivery partners will include TII, NTA and the Department of Transport in conjunction with the relevant local authority.

CycleConnects will then represent the intra-urban cycling network, setting out routes within urban centres in each county, and this plan will be delivered by the NTA and the relevant local authority. Extensive collaboration will continue between the relevant agencies and local authorities to ensure coordinated linkages between the intra-urban and inter-urban cycling plans ensuring a cohesive national network. These two strategies will inform future investment by local authorities in the coming years, and when paired with the expanded range of e-bikes, will provide the high-quality network that supports the use of cycling, e-bikes and e-cargo bikes as viable alternatives to private car use.

The updated Cycle Design Manual published in September 2023 which has drawn on the experience of delivering cycling infrastructure across Ireland over the last decade, as well as learning from international experience, will ensure that the roll-out of infrastructure provides safe cycle facilities for people of all ages and abilities.

Priority will be given to Safe Routes to School, CycleConnects routes, the National Cycle Network and scenic greenways. Annual budgetary constraints may mean that some projects will need to be prioritised based on determining criteria, including particular local needs and opportunities, especially safety needs. In addition, quality walking and cycling infrastructure will be incorporated in all public infrastructure projects.

The Department of Transport recognises and supports the wide range of benefits arising from Greenways including their positive economic impact on local businesses, enabling increased physical activity that will benefit the health and wellbeing of users and supporting safe journeys to and from home, work, education and shops.

The growing numbers of electric bicycles in the fleet mean positive changes in the potential for modal shift to cycling including the proportion of the population cycling regularly, distances travelled, and reduced negative impacts of topography and wind. These changes will be factored into analysis of the potential of active travel modes both themselves and as connections to/from public transport.

15.2.4.2 Major Public Transport Infrastructure Programme

Significant investment in new public transport infrastructure is required to deliver on our carbon emissions reduction targets, and to provide people with the sustainable alternatives to private car usage. Major public transport projects and programmes that are being progressed under the National Development Plan include MetroLink, DART+, BusConnects programmes in all five cities and commuter rail programmes in Cork and Limerick, which have been progressing through major delivery milestones.

With respect to BusConnects Dublin, the programme as well as the procurement strategy for Next Generation Ticketing has significantly advanced, with five phases of the Network Redesign now live, with significant uplift in passenger numbers observed on these routes. Twelve planning applications have been lodged with An Bord Pleanála since April 2022 in respect of the Core Bus Corridor infrastructure to be delivered in the course of subsequent phases.

In Cork, following an extensive public consultation process, the final Network Redesign was published by the National Transport Authority in June 2022 and will provide an increase in bus services of over 50%. Planning for the new network has commenced and it is expected to be fully operational by the end of 2024. With respect to the Sustainable Transport

Corridors infrastructure, two rounds of public consultation have taken place in late 2022 and early 2023.

In Galway and Limerick, public consultations took place earlier this year on the proposed Network Redesigns for each city. Furthermore, in Galway the east-west Cross-City Link through the city centre was submitted to An Bord Pleanála in September 2022.

Under the rail infrastructure programme, Phase 1 of the Cork Area Commuter Rail Programme, which is the largest project in Ireland's National Recovery and Resilience Plan and earmarked to receive €164 million in EU Recovery and Resilience Facility funding, is also progressing well. Works have commenced on the redevelopment of Kent Station and construction of a new through-platform to allow direct services between Mallow to the north and Cobh and Midleton for the first time. A contract has been signed in respect of network-wide re-signaling, with detailed design now underway and works to commence in early 2024.

The DART+ programme was also granted approval-in-principle by the Government in December 2021, and since then two orders for a total of 185 new carriages have been placed under the DART+ Fleet framework. The first of these new units will arrive for testing in 2024 and enter service in 2025, with battery-electric carriages extending DART services to Drogheda in advance of overhead electrification.

The DART+ West project, which will extend services to Maynooth and M3 Parkway and include the construction of a new depot, was lodged with An Bord Pleanála in July 2022. The DART+ South West project, which will extend services to Hazelhatch, was lodged with An Bord Pleanála in March 2023, while multiple rounds of non-statutory public consultation have taken place for DART+ Coastal North, which will extend services to Drogheda.

Accessible transport for all members of society, especially more vulnerable users, for example disabled and older people, also forms a key part of the modal shift from private to public transport. New transport projects are accessible from the design stage and older, legacy infrastructure is being retrofitted under the ring-fenced Public Transport Accessibility Retrofit Programme

Public transport projects will ensure quality active travel access and cycle parking for passengers, and avail of opportunities that public transport infrastructure projects present for providing new or improved active travel infrastructure.

15.2.4.3 Public Transport Services Investment Programme

Meeting the levels of behavioural change and modal shift from private car usage required to

meet our climate targets (cf. Table 15.5) will require large-scale expansion of our public transport services.

Alongside the planned expansion of services under BusConnects and DART+ capital investment programmes, the NTA's Connecting Ireland Rural Mobility Programme is a major national public transport initiative aimed at increasing connectivity, particularly for people living outside major cities and towns (cf. CCAC recommendation 6.5). The programme's proposed implementation timeline spans five phases across 2022-2026.

Public transport services continue to see an increase in patronage, up 112% at the end of 2022 compared to the beginning of 2019. Where Connecting Ireland services have been implemented, patronage has increased 128% from the beginning of 2022 to year-end. This was reflected in the 85% patronage growth on the enhanced services.

The key commitments made in Connecting Ireland are as follows:

- An ambition for 70% of people in rural Ireland to have access to public transport services that provide at least three return trips to the closest large town;
- Over 100 rural villages to benefit from frequent public transport services for the first time;
- Over 100 rural areas to benefit from a regular service to their county town for the first time;
- Over 60 new connections to regional cities from surrounding areas;
- An innovative approach to improving mobility for people in remote areas.

As highlighted above however, achieving the required level of behavioural shift and reduction in private car usage will require increased and expanded public transport services, supported under current funding through the PSO subsidy. The Department of Transport will continue its close engagement with the Department for Public Expenditure, NDP Delivery and Reform to align current funding requirements for services.

National Fares Strategy

In January 2023, the NTA published a new National Fares Strategy to complement the roll out of significant changes to public transport networks in rural and urban areas, such as Bus Connects and Connecting Ireland. The new approach will apply to fares outside the Dublin metropolitan area for public service obligation (PSO) bus and rail services provided by the National Transport Authority under contracts with bus operators and Iarnród Éireann.

The existing fare structures in operation on PSO services are not always equitable, consistent or easy to understand for passengers. In order to resolve these issues, the NTA developed the National Fares Strategy with the following key objectives:

- **Equitable** - the cost of travel should not vary unduly depending on the route taken, or location in the country;
- **Consistent** – the cost per km travelled should not vary unduly, and should be related to straight line distance between the origin and destination of the journey, rather than the route taken;
- **Easy to understand** – related to consistency, customers should be able to understand the fare they are being charged and how it relates to the journey they are making.

For journeys by rail or by bus under the new National Fares Structure, the fare will be calculated depending on how far a passenger is travelling, but this is 'as the crow flies', so passengers will not have to pay more just because their train or bus takes a longer route to get to their destination. As the fare is also based on distance travelled, passengers will be charged a comparable fare to other journeys of a similar distance across the network and will allow the NTA to look at how it can better price journeys that require interchange.

Fares policy will aim at:

- Ticketing integration across all modes of public transport;
- Seeking agreement with Northern Ireland to run integrated rail ticketing on an all-island basis;
- Ease of paying fares;
- Daily and weekly capping for payments by leap (and bank) cards;
- Incentivising modal shift from private motor vehicles.

A vital part of the Connecting Ireland approach, being applied by the NTA to all public transport providers, is the principle of timed connectivity between public transport routes, using a pulse timetabling system to maximise integration between all public transport routes.

15.2.4.4 Smart, Shared and Integrated Mobility Programme

CAP23 recognised the potential of shared mobility to reduce car-dependency and related emissions and to increase well-being. To this end, the Plan incorporated actions to establish a unit within the Department of Transport to develop and promote shared mobility policy, to engage with the shared mobility industry and to consider an ‘eMobility Hub’ model for implementation across the five cities. Additional actions related to the legislation and regulation of Personal Powered Transporters (PPTs), expansion of shared mobility schemes and the development of shared micro-mobility models in the GDA. Good progress was made on all related actions in 2023.

The legislation to provide the legal basis for Personal Powered Transporters (PPTs), including e-scooters, is now in place. Building on the work that has been done to develop a comprehensive and robust Mobility Hub model, it is intended that the NTA will go to tender in 2024 for the staged commencement of services across the 5 Cities. These Mobility Hubs will incorporate a variety of shared mobility solutions including shared micro-modes, bikes, e-bikes, cargo bikes and e-cars, and will be delivered at scale across the five cities when the full strategy is implemented.

Policy underpinning the approach to shared mobility and mobility hubs on a national basis will be advanced in 2024 with plans to develop a Policy Statement on Mobility Hubs in the third quarter of 2024. Further expansion of shared mobility services and the continued promotion of shared mobility solutions will also take place in 2024.

15.2.5 Improve

15.2.5.1 Decarbonising Public Transport and School Transport Services

In the context of fleet decarbonisation, the NTA is also progressing the transition of its urban bus services to a zero-emission bus fleet. No new diesel-only buses have been purchased for urban PSO bus fleets since July 2019, as set out in the National Development Plan 2018-2027. The transition to a zero-emission urban bus fleet is currently programmed to take up until 2035, based on replacement of non-zero-emission buses as they reach the end of their efficient service lives.

The first of 120 double-deck battery-electric buses should enter passenger service in the Dublin area by early next year. These 120 buses are part of a framework to provide for the procurement of up to 800 fully electric buses over a period of five years. As fully electric buses, these vehicles will operate with zero tailpipe-emissions, which will contribute to a substantial improvement in air quality in cities and towns.

Escort to education journeys undertaken by private car continue to represent a significant component of travel demand. The target of a 30% reduction in private car escort to education journeys will continue to be supported by measures including the Safe Routes to School (SRTS) Programme, and the introduction and take-up of local initiatives such as bike libraries and cycle buses. Census 2022 saw the percentage of primary school children being driven to school fall for the first time ever – from almost 60% in 2016 to 55%. Although we are still far below the cycle mode share of the 1980s, the trend has reversed sharply, with 88% more primary school children cycling to school than in 2016, with post-primary levels of cycling also up 79%, with growing demand for Safe Routes to School (SRTS) programme roll-out and expansion of School Transport Scheme.

With 275 schools currently within the SRTS programme, and Phase 3 schools to be brought into the scheme in 2024, these efforts will be complemented by the Department of Education’s School Transport Scheme (STS) review, which is nearing completion. The review has involved an in-depth analysis of the scheme and its broader effectiveness and sustainability and has built upon the commitments within the Programme for Government as they relate to school transport, including examining options to reduce car journeys and assessing how the School Transport Scheme can continue to work in liaison with the Safe Routes to Schools Programme. (cf. CCAC recommendation 6.6).

15.2.5.2 Zero Emissions Vehicles Ireland Work Programme and Electrification Strategy

As the measure expected to deliver the single largest amount of direct emissions abatement in the Climate Action Plan, improvements in vehicle technology and the electrification of our vehicle fleet form a critical component of our decarbonisation pathway.

Zero Emission Vehicles Ireland (ZEVI) launched in July 2022 and has been established as the dedicated office charged with supporting consumers, the public sector and businesses to continue to make the switch to zero emission vehicles. The office leads on the design and investment of policy supports required to maintain momentum and achieve very challenging EV targets – providing a range of infrastructure and grant supports (gov.ie/zevi).

Following the publication of the [National EV Charging Infrastructure Strategy](#) in January 2023, and recent publication of the draft National En-Route EV Charging Plan, the primary focus over coming year will be on expansion in the provision of public charging infrastructure alongside the development of Regional and Local Authority EV Charging Network plans, alongside a gradual move to reduce reliance on vehicle grants in line with international best practice and the continuing mainstreaming of the EV sector within the overall vehicle market.

The vision set for the deployment of public charging infrastructure, which envisages a 300% increase in charging capacity by 2025 and will see fast recharging stations established for cars and vans every 60 km along the main transport corridors, as well as dedicated HGV charging facilities on the TEN-T network and at key urban nodes, will bolster public confidence in transitioning to electric vehicles, and is in line with the European Parliament and Council's recent adoption of the new Alternative Fuels Infrastructure Regulation ([AFIR](#)).

The Regulation also means that users of electric or hydrogen-fuelled vehicles will be able to pay at recharging or refuelling points with payment cards or contactless devices – without needing a subscription. Operators of recharging or refuelling points will be required to provide consumers with full information on the availability, waiting time or price at different stations.

Under the AFIR, each member state will need to prepare an updated National Policy Framework on Alternative Fuels Infrastructure by the end of 2024. The Department of Transport will prepare and publish an issues paper later in 2023 for consultation on the Framework.

15.2.5.3 Renewable Fuels for Transport

Renewable transport fuels, including biofuels, will continue as a core transitional measure for the medium-term reduction of greenhouse gas emissions in transport. Modelling analysis of this measure projects a carbon saving of 1.08 MtCO₂eq by 2030, equating to 13.7% of transport sector decarbonisation in a central scenario. Here, it is noted that the balance of overall emissions abatement through renewable fuels could potentially be greater should the electrification of the vehicle fleet and behavioural change measures fall below the targets set.

The Climate Action Plan biofuels target will continue to be delivered through annual increases in the statutory renewable transport fuel obligation (RTFO) on fuel suppliers requiring a minimum proportion of renewable transport fuel supply. The trajectory of these annual increase in the RTFO rate for the next two years and indicative rates to 2030 has been set out in the updated Renewable Fuels for Transport Policy Statement 2023-2025 published in June 2023.

The policy which will be implemented through 2024 outlines the measures required to achieve national climate action targets and European requirements for sustainability and GHG reduction in renewable transport fuel supply. Responding to recommendations in the Department of Transport's Biofuel Study 2022, the Policy includes actions to establish working groups in 2023 concerning national CAP biofuel targets and achieving the EU

requirements, i.e., ensure greater supply of advanced biofuels in transport energy consumption and concerning the sustainability of biofuel supply (cf. CCAC recommendation 6.11).

15.2.5.4 Maritime and Aviation Sectors

Emissions from the domestic maritime and aviation sectors form less than 5% of sectoral emissions. Further, ports and airports are key to our connectivity as an island nation and ports act as key strategic delivery partners for other sectoral decarbonisation plans.

AFIR and the FuelEU Maritime regulations will require the development of on-shore electricity supply in our TEN-T ports and the increased take-up of renewable maritime fuels in larger vessels. The sector will continue to support plans for the construction of 7 GW of offshore wind projects by 2030, and the longer-term ambition for over 37GW of offshore renewable energy (ORE) projects to be delivered before 2050. The development of port infrastructure to facilitate ORE will be central to the delivery of Irish ORE targets. In this regard the Department will advance work to identify and resolve barriers to the delivery of ports infrastructure to facilitate ORE and continue to facilitate and support ports through their applications for Marine Area Consents and ultimately through the planning process.

The planned update to our National Ports Policy will also include the re-evaluation of the policy framework for the decarbonisation of our ports as a key consideration, and take into account recommendations of the draft All-Island Strategic Rail Review with regard to enhanced rail connectivity to our ports to improve and encourage greater integration of rail freight and rail passenger transport with our seaports, such as through the recent combined ‘Sail and Rail’ ticketing initiative between France and Ireland that aims to simplify booking processes and to encourage environmentally-friendly modes of transport (cf. CCAC Recommendation 6.12).

In aviation, the European Green Deal aims to achieve net-zero emissions by 2050 and reflects the global long-term aspirational goal (LTAG) for international aviation of net-zero carbon emissions by 2050, agreed by the International Civil Aviation Organization. Due to the inherent cross-border and international nature of aviation emissions, efforts to reduce aviation emissions are best undertaken within an international framework. The ReFuelEU Aviation regulation will also mandate the increasing deployment of SAF at Union airports and include a ten-year transition period where fuel suppliers can supply the required level of SAF as a weighted average across the EU.

In that context, the Department of Transport is establishing a Task Force in this area which will include industry and academia representatives. This will bring together stakeholders with

responsibility for, and interest in, policy development and implementation in relation to SAF. One of its main tasks will be to assist with the development of a national SAF Policy Roadmap which will help inform policy formation to highlight the necessary stakeholder actions to ensure Ireland can meet its regulatory obligations to decarbonise aviation (cf. CCAC Recommendation 6.13).

Conscious of the non-CO₂ climate impacts of aviation, we will engage with the process already underway in relation to the potential integration of non-CO₂ forcing into the EU ETS. We will also encourage the development of technical capacity in the relevant State aviation companies to support future work at EU level on this issue.

15.2.6 Adaptation

Transport infrastructure and networks are critical to the operation of Irish society and, as set out in the Sectoral Adaptation Plan for the Transport sector, transport networks are increasingly exposed to the effects of climate change with increased storms, flooding and high temperatures posing challenges for the operation and resilience of roads, rail networks, ports, and airports.

The Sectoral Adaptation Plan for Transport maps out the steps that are necessary over the coming years to adapt transport infrastructure to 2030 and beyond.

In accordance with the National Adaptation Framework, the Department of Transport is developing a new Sectoral Adaptation Plan for Transport, including an updated risk analysis and SMART actions and objectives to accelerate the transport sector's adaptation to climate change. This process will be supported targeted research on transport-sector adaptation to fill existing knowledge gaps, including on a cross-sectoral basis.

The need to integrate adaptation and mitigation actions is now recognised, to prioritise those actions with the potential for co-benefits, avoid maladaptation and maximise resources.

15.3 Targets and 2025 and 2030 KPIs

The modelling work undertaken to inform CAP23 established highly challenging outcome focussed indicators for both 2025 and 2030 and which remain valid for CAP24. These are presented again below to communicate the level of change required in the sector.

Table 15.5 – Key Metrics to Deliver Abatement in Transport

Theme	2025 KPI	2025 abatement (vs 2018) MtCO ₂ eq.	2030 KPI	2030 abatement (vs 2018) MtCO ₂ eq.	2031-2035 measures
Avoid (encompassing a range of behavioural change and sustainable transport measures)¹²⁰					
Reduction in Total Vehicle Kilometres	n/a	Abatement captured under 'Shift' measures below	20% reduction in total vehicle kms. relative to 2030 BAU scenario	Abatement captured under 'Shift' measures below	Continued application of AVOID – SHIFT – IMPROVE approach
Reduction in Fuel Usage			50% reduction in fuel usage		
Shift (encompassing a range of behavioural change and sustainable transport measures)					
Increase in Sustainable Transport Trips	<ul style="list-style-type: none"> • Additional 125,000 sustainable Journeys • Roll-out of sustainable demand management measures informed by National Demand Strategy 	0.72	<ul style="list-style-type: none"> • 50% increase in daily active travel Journeys • 130% increase in daily public transport journeys. • 25% reduction in daily car journeys. 	2.09	Continued application of AVOID – SHIFT – IMPROVE approach
Shift in Daily Journeys Modal Share	<ul style="list-style-type: none"> • Delivery of Pathfinder Programmes 		<ul style="list-style-type: none"> • Shift in Daily Mode Share. <p>2018: 72% (car), 8% (PT), 20% (AT).</p> <p>2030: 53% (car), 19% (PT), 28% (AT).</p>		

¹²⁰ Avoid + Shift measures combine to achieve 0.72MtCO₂eq. abatement for 2025 period and 2.09MtCO₂eq. abatement for 2030 period

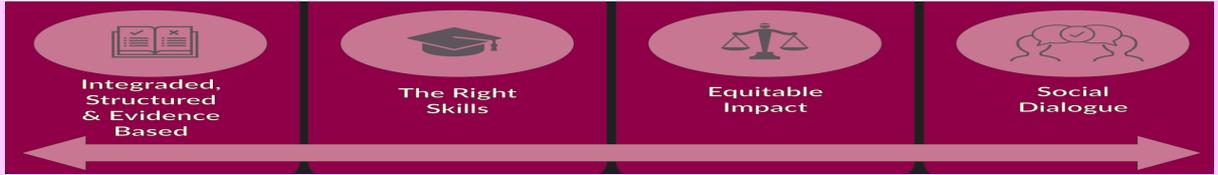
Improve					
Fleet Electrification	<ul style="list-style-type: none"> • 175,000 passenger EVs • 20,000 commercial vans • 700 low-emission HGV • 300 EV buses in PSO bus fleet • Expansion of electrified rail services 	1.96	<p>Private Car Fleet Battery EV share of total passenger car fleet (30%) EV share of new registrations (100%) 845,000 Private EVs¹²¹</p> <p>Commercial Fleet 20% EV share of total LGV fleet; 95,000 commercial EVs; 30% ZE share of new heavy duty vehicle registrations; 3,500 HGVs.</p> <p>PT Services 1,500 EV buses in PSO bus fleet; Expansion of electrified rail services.</p>	4.74	
Biofuels Blend Rate¹²²	E10:B12	0.53	E10:B20	1.08	
Total Estimated Abatement Potential		3.21		7.91	
Sub Targets – Changing Transport Behaviours by Journey Purpose					
Escort to Education Journeys	<ul style="list-style-type: none"> • Achieve 30% reduction in the share of current escort-to-education car journeys to sustainable modes with accelerated implementation of Safe Routes to School programmes and enhancement of School Transport Scheme. 				

¹²¹ Private car EV targets are kept under ongoing review and may be subject to recalculation on a regular basis.

¹²² A renewable transport fuel obligation has been in place since 2010 and, since then, increasing volumes of renewable transport fuels (e.g., biofuels) have been introduced to Ireland's transport fuel supply. The obligation ensures that a certain percentage of the motor fuel placed on the market by fuel suppliers is renewable transport fuel (for example: bioethanol and biodiesel).

Commuting Journeys	<ul style="list-style-type: none"> • Achieve a 20% reduction in commuting private car kilometres, enabled through initiatives such as the Smarter Travel Mark pathfinder programme, and establishing network of remote working hubs
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15.4 Just Transition



Integrated, Structured, evidence-based approach

In keeping with the overall approach to emissions abatement in the Transport sector, a key consideration for a Just Transition is in determining the appropriate balance of AVOID, SHIFT and IMPROVE measures to be pursued. Addressing transport poverty, forced car ownership and fossil-fuel dependency form fundamental considerations in the design of our decarbonisation pathway.

Building on the approach set out in CAP23, CAP24 will continue to seek the acceleration of the NTA’s Connecting Ireland Rural Mobility Programme, providing a transformative increase in access and connectivity for people living outside of major cities and towns. Ongoing and planned consultations in the context of the preparation of the National Demand Management Strategy, will also act as a platform for further consideration of the measures to be pursued and their potential impacts on vulnerable cohorts and captive car users.

In terms of our IMPROVE work programmes, the Electric Vehicles Charging Infrastructure Strategy 2022 – 2025 will also see significant expansion in the level of public charging infrastructure over the next three years. The strategy integrates with the Climate Action Plan, the EU ‘Fit for 55’ Alternative Fuels Infrastructure Regulation, Renewable Energy Directive, the National Sustainable Mobility Policy and the National Development Plan targets to have approx. 1 in 3 electric vehicles on the road by 2030, with additional charging infrastructure to cater for growth.

The Right Skills

The Expert Group on Future Skills Need’s report [Skills for Zero Carbon – The Demand for Renewable Energy, Residential Retrofit and Electric Vehicle Deployment Skills to 2030](#) identifies the skills needed to support the development of e-mobility in Ireland, including the provision of EV charging infrastructure. Measures identified include engagement with existing motor mechanics to encourage and support their upskilling to work on Electric Vehicles; to improve the attractiveness of the sector to retain existing labour and attract new entrants; and to incorporate EV material into relevant Apprenticeship Syllabuses and provide EV Safety Training to the existing mechanic labour force.

SOLAS, the state agency overseeing Ireland’s Further Education and Training (FET) Sector, will work with Education and Training Boards (ETBs) to ensure learners are equipped with the right skills to advance, and benefit from, the transition to sustainable mobility. This will include the development and implementation of a robust governance framework with subgroups for skills development oversight at agency level, aligned to the cross-departmental transport sector groups.

Equitable Impact

‘Transport poverty’ is a challenge which particularly impacts on rural communities, leading to communities being more isolated or ‘locked-in’ to car ownership, largely as a result of a legacy of dispersed, low-density development and prioritisation of road-based infrastructure over the provision of more sustainable alternatives. The Department of Transport’s Zero Emission Vehicles Office (ZEVI) has been awarded €15 million funding under the EU Just Transition Fund for the roll-out of EV charging infrastructure in the Midlands to provide destination charging at community facility locations across the region. A scheme launched in 2023 and will begin to deliver charge-points in 2024.

Dialogue

Transport continues to be a focus within the National Dialogue for Climate Action. ZEVI’s strategy takes a people-first approach, focusing on seven user groups (or personas) illustrating different transport needs across different parts of the country both rural and urban, or in different housing types, for example. It then follows an individual’s journey from the planning stages to their return home, mirroring the needs of real people and groups.

15.5 Actions

Table 15.6 sets out the sector specific roadmap of actions to 2025 that will support the delivery of Ireland’s carbon budgets and sectoral emissions ceilings. Table 15.7 specifically describes the actions for delivery in 2024. Where these actions are high-impact actions new to 2024, they are also included in the 2024 Annex of Actions. The 2024 actions within the Annex will be reported on quarterly by the Department of the Taoiseach.

Table 15.6 – Key Actions to Deliver Abatement in Transport for the period 2024-2025

Measure	2024 Actions	2025 Actions
Horizontal / Cross-cutting		
Enhanced Governance and Accelerating Implementation	Progress SMP Leadership Group work programme, including oversight and delivery of SMP Action Plan and Progression of SMP Pathfinder Programme.	Progress SMP Leadership Group work programme, including oversight and delivery of SMP Action Plan and Progression of SMP Pathfinder Programme.
	Develop framework to oversee emerging skills requirements for e-mobility.	
	Supporting fuel technology improvement in transport through a dedicated cross-Departmental strategic working group on alternative fuels in transport.	
Communications Strategy	Progress evidence-based engagement strategy actions and advertising campaigns to support achievement of transport sector behavioural change and emissions abatement targets.	Progress evidence-based engagement strategy actions and advertising campaigns to support achievement of transport sector behavioural change and emissions abatement targets.
Haulage and Logistics	Advancement of decarbonisation elements of Road Haulage Strategy	Advancement of Road Haulage Strategy (RHS) work programme.
	Enhanced rail connectivity to ports – rehabilitation of Shannon-Foynes freight line.	
	Establish a national certification/accreditation system for eco-driving courses and consider	

	mechanisms and incentives for operators to adopt and maintain eco-driving practises.	
Avoid		
Enhanced Spatial and Land-use Planning	Support and promote a modal shift towards healthy active and sustainable mobility in the design and delivery of LDA developments. Plan to reduce travel by private car and design to optimise connectivity and access to sustainable and active travel. Promote mobility management planning and e-mobility as well as options for car sharing/clubs.	
Strategic Transport Planning	Metropolitan Area Transport Strategies – programme of review, update, appraisal.	Metropolitan Area Transport Strategies – programme of review, update, appraisal and planning of services.
Avoid+Shift		
Demand Management Strategy	Publish National Demand Management Strategy.	Implement actions from National Demand Management Strategy.
		Publish Greater Dublin Area (GDA) Demand Management Scheme.

Shift		
Active Travel Infrastructure Programme	Advance roll-out of walking/ cycling infrastructure in line with National Cycle Network and CycleConnects plans.	Advance roll-out of walking/ cycling infrastructure in line with National Cycle Network and CycleConnects plans.
Major Public Transport Infrastructure Programme	Advance DART+ Programme.	Advance DART+ Programme.
	Advance BusConnects Programme.	Advance BusConnects Programme.
	Continue investment in passenger and freight rail, informed by outcomes of All-Island Strategic Rail Review (SRR)	Continue investment in passenger and freight rail, informed by outcomes of All-Island Strategic Rail Review (SRR)
Public Transport Services and Escort to Education Journeys	SMP Pathfinder: Accelerate Implementation of Safe Routes to School (SRTS) Programme.	SMP Pathfinder: Accelerate implementation of Safe Routes to School (SRTS) Programme.
	Prioritise and accelerate delivery of NTA Connecting Ireland and new town services, via demand responsive transport pilot initiatives, conventional and non-conventional modes of public transport services.	Prioritise and accelerate delivery of NTA Connecting Ireland and new town services, via demand responsive transport pilot initiatives, conventional and non-conventional modes of public transport services.
Smart, Shared and Integrated Mobility	Development and publication of Policy Statement on Mobility Hubs.	Continued rollout of regional bike sharing schemes etc

	Rollout of expanded Regional Bike sharing schemes in Limerick, Cork, Waterford and Galway, including enhanced e-bike provision	
Improve		
Decarbonising Public Transport and School Transport Services	Advance PSO electric bus fleet procurement, including depot charging upgrades.	Advance PSO electric bus fleet procurement, including depot charging upgrades.
	Identify measures to improve sustainability of School Transport Scheme (STS), informed by Phase 3 review.	
EV Charging Infrastructure Strategy & ZEVI work programme	Ongoing delivery of Destination Charge Point Scheme – including sports clubs and community facilities.	Ongoing delivery of Destination Charge Point Scheme – including sports clubs and community facilities.
	Roll out of key elements of EV Infrastructure Strategy	Roll out of key elements of EV Infrastructure Strategy
	Review financial and taxation incentives to further the transition of energy efficient vehicle fleets, considering actions to support and deliver a just and equitable EV transition.	Review financial and taxation incentives to further the transition of energy efficient vehicle fleets, considering actions to support and deliver a just and equitable EV transition.
Renewable Fuels for Transport	Implement the measures in the Renewable Transport Fuel Policy Statement 2023-2025.	Implement the measures in the Renewable Transport Fuel Policy Statement 2023-2025.
	Re-evaluation of the policy framework for the decarbonisation	

	of ports as part of the overall review of National Ports Policy.	
Adaptation		
Transport Adaption for Enhanced Climate Resilience	Develop a new Sectoral Adaptation Plan for Transport Infrastructure in line with updated NAF and sectoral adaptation planning guidelines	Implement the new Sectoral Adaptation Plan for Transport Infrastructure in line with updated NAF and sectoral adaptation planning guidelines

The detailed implementation maps for actions, including timelines and responsible organisations, are set out in the accompanying Annex.

Table 15.7 – 2024 Actions

Action Number	Action
TR/24/1(TF)	Progress SMP Leadership Group work programme, including oversight and delivery of SMP Action Plan and Progression of SMP Pathfinder Programme
TR/24/2	Develop framework to oversee emerging skills requirements for e-mobility
TR/24/3	Supporting fuel technology improvement in transport through a dedicated working group on alternative fuels in transport.
TR/24/4 (TF)	Progress evidence-based engagement strategy actions and advertising campaigns to support achievement of transport sector behavioural change and emissions abatement targets
TR/24/5	Advancement of decarbonisation elements of Road Haulage Strategy
TR/24/6	Enhanced rail connectivity to ports – rehabilitation of Shannon-Foynes freight line

TR/24/7	Establish a national certification/accreditation system for eco-driving courses and consider mechanisms and incentives for operators to adopt and maintain eco-driving practises
TR/24/8 (TF)	Support and promote a modal shift towards healthy active and sustainable mobility in the design and delivery of LDA developments. Plan to reduce travel by private car and design to optimise connectivity and access to sustainable and active travel. Promote mobility management planning and e- mobility as well as options for car sharing/clubs
TR/24/9 (TF)	Metropolitan Area Transport Strategies – programme of review, update, appraisal
TR/24/10	Publish National Demand Management Strategy
TR/24/11 (TF)	Advance roll-out of walking/cycling infrastructure in line with National Cycle Network and CycleConnects plans
TR/24/12 (TF)	Advance DART+ Programme
TR/24/13 (TF)	Advance BusConnects Programme
TR/24/14 (TF)	Continue investment in passenger and freight rail, informed by outcomes of All Island Strategic Rail Review
TR/24/15 (TF)	SMP Pathfinder: Accelerate implementation of Safe Routes to School Programme
TR/24/16 (TF)	Prioritise and accelerate delivery of NTA Connecting Ireland and new town services, via demand responsive transport pilot initiatives, conventional and non-conventional modes of public transport services
TR/24/17 (TF)	Development and publication of Policy Statement on Mobility Hubs
TR/24/18 (TF)	Rollout of expanded Regional Bike sharing schemes in Limerick, Cork, Waterford and Galway, including enhanced e-bike provision

TR/24/19 (TF)	Advance PSO electric bus fleet procurement, including depot charging upgrades
TR/24/20 (TF)	Identify measures to improve sustainability of School Transport Scheme, informed by Phase 3 review
TR/24/21	Ongoing delivery of Destination Charge Point Scheme, including sports clubs and community facilities.
TR/24/22	Roll out of key elements of EV Infrastructure Strategy
TR/24/23 (NR)	Review financial and taxation incentives to further the transition of energy efficient vehicle fleets, considering actions to support and deliver a just and equitable EV transition.
TR/24/24	Implement the measures in the Renewable Transport Fuel Policy Statement 2023-2025
TR/24/25	Re-evaluation of the policy framework for the decarbonisation of ports as part of the overall review of National Ports Policy
TR/24/26	Develop a new Sectoral Adaptation Plan for Transport Infrastructure in line with updated NAF and sectoral adaptation planning guidelines

16. Agriculture

Key Messages

Sectoral Emission Ceilings

- Carbon Budget 1 (2021-25): 106 MtCO₂eq.
- Carbon Budget 2 (2026-30): 96 MtCO₂eq.
- Required reduction in annual emissions (on 2018): -25% (17.25 MtCO₂eq. per annum by 2030).
- Emissions so far over this first carbon budget period (2021, 2022): 46.96 MtCO₂eq

State of Play/Trends in the Sector

Agriculture accounted for 34.3% of Ireland’s greenhouse gas (GHG) emissions in 2022¹²³. Between 2012 and 2022, emissions grew by 14%, to a provisional 23.34 MtCO₂eq. in 2022. The 2022 figure represents a 1.2% decrease on the peak of 23.6 MtCO₂eq. in 2021. This decrease was predominantly driven by reductions in fertiliser use.

To meet the total emissions in the first carbon budget, a steeper reduction in emissions is required for the remaining period. Existing and future policy measures must ensure that the decrease observed to date is not just sustained but accelerated to comply with sector’s carbon budget in the remaining time.

Key Targets

Targets	2021 – 2025 MtCO ₂ eq.	2026 – 2030 MtCO ₂ eq.	Total MtCO ₂ eq. (2021-2030)
Reducing chemical N use to a maximum of 300,000 tonnes	0.4 – 0.45	0.1 – 0.2	0.5 – 0.65
Increased adoption of Inhibited urea	0.35 – 0.45	0.08 – 0.12	0.43 – 0.57

¹²³ Total is inclusive of land use, land use change and forestry

Earlier finishing of beef cattle (3 – 3.5 months reduced finishing age)	0.25	0.48	0.73
Reduce age at first calving of suckler beef cows	0.03	0.07	0.1
Improved animal breeding by focusing on low methane traits	0.0	0.3 – 0.5	0.3 – 0.5
Low emission animal feeding	0.2	0.4	0.6
Miscellaneous measures, including extended grazing and acidification, amendments, aeration of manures and slurries.	0.2	0.3	0.5
Total Core	1.43 – 1.58	1.73 – 2.07	3.16 – 3.65
Further Measures			
Addition of a slow-release pasture-based feed additive/methane inhibitor	0	0.6	0.6
Mobilise recommendations of the Food Vision sectoral groupings and support land use diversification options for livestock farmers, such as anaerobic digestion, forestry, and tillage	1.3	0.2	1.5
Organic farming (75k ha to 450k ha)	0.1	0.2	0.3
Total Further	1.4	1.0	2.4

All Measures	2.83 – 2.98	2.73 – 3.07	5.56 – 6.05
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Measures and Actions

The agriculture sector is undergoing a significant transformation to deliver the reduction in GHG emissions required which will impact across Ireland’s agriculture and food production systems. Guided by the Food Vision 2030 Strategy, Irish farmers and food producers will further prioritise delivery of environmental, social and economic sustainability. We are doing this through actions in the following areas:

- Reducing nitrous oxide emissions
- Reducing methane emissions
- Increasing carbon capture
- Enhancing biodiversity
- Providing diversification options for livestock farmers
- Enhancing adaptation
- Supporting the development of new research

16.1 State of Play

The agriculture sector is the largest contributor to Ireland’s greenhouse gas (GHG) emissions. While challenging from an Irish perspective, and unusual in an international context, this fact reflects the economic and historical importance of agriculture, relative to other industries in the Irish economy. Reducing emissions in agriculture is not a uniquely Irish challenge – throughout Europe, reducing GHG emissions in agriculture has proven difficult. What sets Ireland apart from its EU counterparts is the scale of our beef and dairy primary production industries relative to our population and land size, and the lack of heavy industry in Ireland’s economic make-up.

Agriculture was a sector that reduced emissions in 2022 compared to 2021. Economy-wide, 25% of the 1.9% year-on-year reduction in total emissions can be attributed to the agriculture sector.

There is a significant overlap between agriculture and the land use, land use change and forestry (LULUCF) sector; as the vast majority of land in the state is agricultural land, land use emissions and removals are strongly influenced by actions undertaken by farmers.

Actions to reduce emissions from agriculture do have significant positive co-benefits such as the development of our domestic bioeconomy, enhancing ecosystem services such as water and air quality, biodiversity, and providing nature-based solutions for climate change adaptation.

Agriculture accounted for 34.3% of Ireland's greenhouse gas (GHG) emissions in 2022 (this is inclusive of emissions from LULUCF; without these, the figure is 38.4%). Between 2012 and 2022, emissions grew by 14%. The provisional figure for 2022 is 23.34 MtCO₂eq. down from the 2021 peak of 23.6 MtCO₂eq.

16.1.1 Stocktake of abatement progress to date and corrective actions required

Although agricultural emissions have decreased recently, they have still been higher than the proposed pathway outlined in Climate Action Plan (CAP23). The Climate Change Advisory Council (CCAC) indicates that 44% of agriculture's sectoral emission ceiling for 2021-25 has already been expended in the first two years of the carbon budget period (CCAC, [2023](#)).

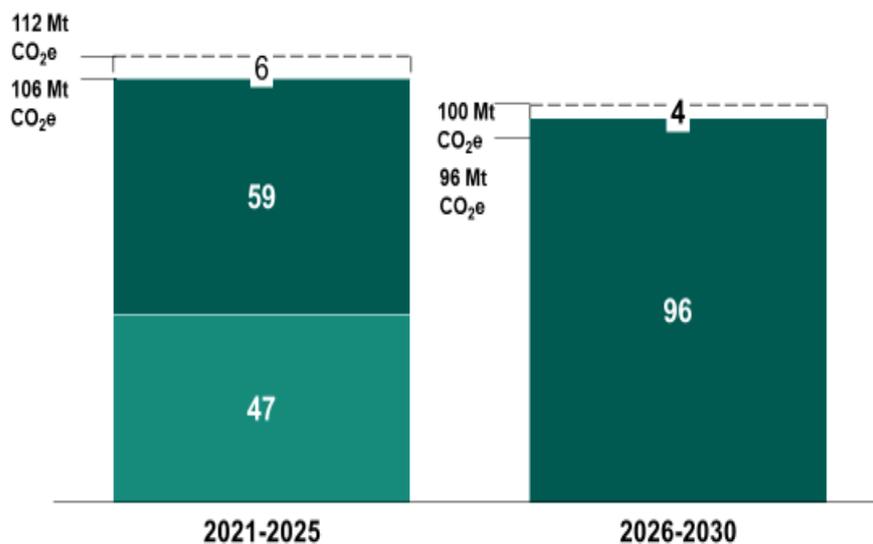
Figure 16.1 – Agriculture Sector Emissions Relative to the Sectoral Emission Ceilings and EPA’s ‘WAM’ Scenario Projections¹²⁴

FIGURE MAY NOT SUM DUE TO ROUNDING



- WAM emissions
- Emissions remaining under SEC
- Emissions used under SEC

Agricultural SEC 2021-2025 and 2026-2030 and projected emissions in WAM scenario, Mt CO₂e



- The agricultural sector has SECs of **106 and 96 Mt CO₂e** for periods 2021-25 and 2026-30 respectively
- ~ **47 Mt CO₂e** of the agricultural 2021-2025 SEC were used in 2021-22, leaving ~**59 Mt CO₂e remaining for 2023-2025**
- EPA WAM projects agricultural emissions to be ~**6Mt CO₂e above the 2021-25 SEC** and ~**4 Mt CO₂e above the 2026-30 SEC**

Sources: Climate Action Plan 2023 (Govt of Ireland, December 2022); Ireland’s Greenhouse Gas Emissions Projections (EPA, June 2023).

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As shown above, the Environmental Protection Agency (EPA) has identified a gap to agriculture’s expected emissions target¹²⁵. It suggests that, under planned GHG reduction measures, emissions will decrease to 19 MtCO₂eq. by 2030 rather than the 17.25 MtCO₂eq. set out in CAP23. This 1.75 MtCO₂eq. gap exists for two reasons. First, the EPA could not fully model the Department of Agriculture, Food and the Marine’s (DAFM) CAP23’s diversification measures, which are responsible for up to 1.5 MtCO₂eq. of this gap. Efforts are under way to make these key performance indicators (KPIs) more defined and spell out specific measures for policy implementation, which will facilitate future modelling of this measure (see below). The final 0.25 MtCO₂eq. of the gap is due to differing modelling approaches between the EPA and CAP23, primarily linked to different assumptions around demand growth. The recent Teagasc Marginal Abatement Cost Curve (MACC) publication

¹²⁴ A more detailed graphic regarding the Agriculture sector’s emissions relative to Sectoral Emission Ceilings and EPA projections is available in Appendix 1

¹²⁵ Refinements to historical emissions data in 2022 means that the 2018 baseline changed from 22.97MtCO₂ eq. to 23.39 MtCO₂ eq. The sectoral emissions ceilings will remain as those agreed by the Government in 2022.

sheds light on potential demand growth scenarios for the agricultural sector.

Regarding agriculture's path forward, the sector has made substantial progress on some of CAP23's KPIs in the past year. For example, the use of chemical nitrogen (N) has fallen to roughly 343,000 tonnes, which represents a 14% decrease in chemical N use on the previous year. This brings the agricultural sector close to its goal of reducing chemical N use to a maximum of 330,000 tonnes by 2025. Additionally, tillage increased to roughly 349 kha in 2022, up by 6% from 2021 and close to the target of 360 kha of tillage by 2025, although the area under tillage saw a small decrease in 2023. There is a risk of a rebound in chemical N use if prices fall, which will have to be managed through a continued focus at farm level on replacing chemical nitrogen with organic sources and improving nitrogen use efficiency, supported by knowledge transfer programmes.

For some other KPIs, however, progress has been harder to measure. In some cases, this is due to a lack of in-depth data for tracking KPIs. In other cases, KPIs are not sufficiently specific to track. This has also hindered full modelling of their abatement by the EPA, as outlined above. Efforts are in progress to improve the measurability of KPIs, and further action must be taken to improve data availability so that KPIs can be tracked more precisely.

Additional progress has been made in terms of improved analytics on levers for reducing agricultural emissions. The revisions of the Teagasc MACC assess the abatement potential of many of the levers outlined in CAP23, as well as some additional levers.

New policies and programmes will help the agricultural sector reduce its emissions. The new Forestry Programme for 2023-27 offers substantial support for farmers to diversify their farming enterprise and reduce overall agricultural emissions. The Fifth Nitrates Action Programme 2022-2025 also helps reduce nitrate pollution of Ireland's soils and water while reducing the emissions of N₂O, a potent GHG. The Biomethane Strategy will also provide opportunities for farmers to diversify into production of feedstocks, create a new value stream for slurry and forage, as well as highlighting their valued contribution to decarbonising the energy system.

Nonetheless, the Climate Act requires corrective action to be taken, the importance of which is highlighted by the gap between projected agricultural emissions and their 2030 target. First, efforts are in progress to improve the measurability of KPIs, which will help both to better track KPIs and better model their impacts on agricultural emissions. Second, insights from the new Teagasc MACC will serve as a key tool for policymakers in identifying further options to reduce emissions in the agriculture sector, and relevant insights will be

incorporated into future Climate Action Plans following engagement with relevant sectoral stakeholders. Beyond these actions, the upcoming period will see several specific, targeted actions to help drive the delivery of abatement KPIs in the agriculture sector. This is in line with DAFM’s innovation-focused partnership with Climate-KIC and their ‘Deep Demonstration’ model of agri-food innovation.

Understanding the deployment of feed additives, which the Teagasc MACC highlighted as an area of additional potential, must also be improved; the deployment of feed additives is incorporated into targets for 2030 as a necessary measure.

16.1.2 Emissions Profile to Date

Table 16.1 – Latest Agricultural GHG Emissions

2022 Agricultural Emissions MtCO₂eq.	Share of Total GHG Emissions	Agricultural Emissions tCO₂ per capita
23.34	34.3%	4.5

62.5% of agricultural emissions in Ireland are due to enteric fermentation – the biological process within the digestive system of cattle that releases Methane (CH₄) into the atmosphere. Manure management constitutes a further 11% of the agricultural emissions profile, meaning that livestock combined is responsible for approx. 74% of emissions in the sector.

The second most significant category of emissions (22.8%) is of Nitrous Oxide (N₂O) released from the application of organic and chemical fertiliser to soils.

Smaller quantities of CO₂ emissions are linked to the application of urea and lime to soils. Liming has seen an increase in recent years (87.5% increase in CO₂ from liming in the 5 years 2017-2022), but the improved soil fertility associated with increased liming should result in decreased fertiliser use, leading to an overall reduction in emissions.

Provisional figures suggest a 1.2% decrease in agricultural emissions year-on-year between 2021 and 2022¹²⁶, predominantly driven by reductions in fertilizer use, a reflection of the

¹²⁶ Absolute figures may vary from those referenced in previous climate action plans due to ongoing inventory revisions – please see p. X (ref. to earlier section of CAP referencing this issue)

recent substantial increase in fertilizer prices due to external events driving down its use. However, changes in farm nutrient management practices are also an underlying factor in this reduction. The realisation of greater reductions in emissions for this sector was offset by an increasing dairy herd.

16.1.3 Long-term Trends in Agricultural Emissions

Table 16.2 – Trends in Agriculture GHG Emissions

Timeframe	Percentage Change	Absolute Change MtCO ₂ eq.
1998-2011	-15.6%	-3.57
2011-2022	+19%	+3.74

Technical improvements have led greater greenhouse gas-efficiencies in production but increases in the absolute number of bovine livestock has driven an overall rise in emissions as agricultural emissions are driven by cattle numbers. The substantial increase in total cattle numbers took place between 2011 and 2017, since when total numbers have been stabilising, with a reduction of 1% in 2022. Historic changes in emissions are driven by economics, the expansion and contraction of demand for certain products, and the changes to the European Common Agricultural Policy. For example, the removal of EU quotas for milk production in 2015 has had a major impact in the expansion of the dairy sector.

16.2 Sectoral Ceiling and Carbon Budgets

The first carbon budget allocates 106 MtCO₂eq. for the agriculture sector over the five-year period of 2021 to 2025. Provisional data from the EPA indicates that 46.96 MtCO₂eq. of this budget has already been used in 2021-22. Therefore, the sector now needs to reduce emissions by, on average, 8.3% annually for 2023, 2024 and 2025 in order to remain within the first carbon budget allocation.

Table 16.3 – Required Level of Decarbonisation for Carbon Budgets 1 and 2

Sectoral Carbon Budget 2021 to 2025 MtCO₂eq.	Cumulative Emissions to 2022	Remaining Sectoral Carbon Budget 2023 to 2025 MtCO₂eq.	Sectoral Carbon Budget 2026 to 2030 MtCO₂eq.
106	46.96	59.04	96

Table 16.4 – Required Level of Decarbonisation for Sector

2018 Emissions MtCO₂eq.	Indicative Target for 2025 Emissions MtCO₂eq.	Indicative Target % Reduction for 2025	2022 Emissions MtCO₂eq.	% Increase (+) / Reduction (-) to date
23	20	~10%	23	0%

Emissions reduction in the agriculture sector is particularly challenging because it is a biological system; as long as we produce food, fuel or fibre, there will always be residual emissions. In particular, there is a lack of mature technologies to directly mitigate methane emissions from livestock in pasture-based systems. Policies must continue to support the rapid development of these technologies whilst driving the rollout of existing solutions. This is particularly the case where mitigation measures, such as more efficient nutrient application and the use of inhibited urea fertilisers or different fertilizer compounds, can also mitigate agriculture’s other environmental impacts – such as on biodiversity and water quality – as well as delivering economic benefits to farmers.

Livestock grazing out of doors dominates Irish agriculture and Ireland’s agriculture sector has a reputation for high quality and sustainably produced food. Maintaining and verifying that reputation is an imperative for our domestic agri-food industries as 90% of its products are exported. Ireland and Irish produce are well regarded through the Origin Green programme. Maintaining and building on this reputation provides Irish produce with a competitive advantage. Changes required to mitigate emissions from this sector shall enhance its environmental and sustainable credentials, reinforcing its brand. Conversely, failure to mitigate emissions is a risk to the sector’s reputation for sustainable production in key markets.

Emissions can also be reduced through diversification from conventional livestock farming into farming enterprises such as organics, tillage, high-value bioeconomy products and forestry that have a lower carbon footprint. These actions have significant economic and environmental co-benefits.

Food Vision 2030 is Ireland's shared stakeholder-led strategy for the agri-food sector. Food Vision aims for Ireland to be *"a world leader in sustainable food systems"*. Ireland aims to deliver food security and nutrition for all in such a way that the economic, environmental, and social bases to generate food and nutrition for future generations are not compromised. Food Vision 2030 sets out 22 goals under the following four high-level missions that the sector must achieve if it is to fulfil this ambition:

- A Climate-Smart, Environmentally Sustainable Agri-food Sector;
- Viable and Resilient Primary Producers, with Enhanced Wellbeing;
- Food that is Safe, Nutritious and Appealing, Trusted and Valued at Home and Abroad;
- An Innovative, Competitive and Resilient Sector, Driven by Technology and Talent.

The strategy has the objective of achieving a climate-neutral food system by 2050, with verifiable progress achieved by 2030, encompassing emissions, biodiversity, and water quality, as well as a range of other targets for forestry, fisheries, organic farming, and food waste.

Under Food Vision 2030, a number of working groups were established whose remit includes work to further develop options for emissions reduction in the sector.

16.2.1 Teagasc Marginal Abatement Cost Curve

The third iteration of the Teagasc MACC, published in July 2023, outlines pathways for significant step changes. The 2023 MACC identifies, in the form of a single visual representation, the most cost-effective pathway to reduce GHG emissions and enhance carbon sequestration in the agricultural, land-Use, land-use change and forestry sectors plus (bio) energy. Each potential measure for emissions reduction is assessed in terms of cost and total potential mitigation.

Building on the last MACC (published in 2019), the 2023 document reflects new developments in technology, research, and global market conditions. It will serve as a key

tool for policymakers in identifying further options to reduce emissions in the agriculture sector. There are a number of key differences to the previous MACC. These include:

- Updated animal number projections based on the latest modelling;
- A separation of measures that increase GHG efficiency of production (and therefore may not deliver a reduction in total emissions in the case of rising activity levels) against those that reduce emissions in absolute terms;
- New measures have been added, including age at finishing, feed additives, and diversification etc. The potential contribution of some existing measures has been adjusted based on the latest science;
- Two adoption pathway rates for GHG mitigation measures have been established along with three possible scenarios for how animal numbers might evolve.

The 33 measures set out in the 2023 MACC following engagement with all stakeholders now need to be integrated into an updated Ag Climatise roadmap through 2024/2025 and in turn for them to be turned into actions in the Climate Action Plan.

16.2.2 An Innovation Focused Partnership with EIT Climate-KIC

Achieving our climate ambition in the agri-food sector in Ireland requires new and innovative approaches by everyone in the industry and beyond. Ireland needs to embed new thinking and approaches across the sector to deliver climate goals whilst retaining a thriving sector.

Funded by the European Commission through the European Institute of Technology (EIT), EIT Climate-KIC is Europe's leading innovation community working to support the delivery of a climate resilient economy and society.

DAFM has partnered with EIT Climate-KIC to work with public and private stakeholders in the Irish agri-food sector and help the sector deliver an accelerated pathway of climate action.

Climate-KIC are applying their "Deep Demonstration" model of innovation to the entire agri-food and biobased value chain. This involves working with stakeholders from public, private, finance, civic and education sectors to develop and deploy coordinated actions. A key step will see the partnership identify, mobilise, and deploy both grant funding and private investment (venture, corporate and institutional) capital to support the innovation actions.

16.3 2025 and 2030 KPIs Key Metrics

Climate Action Plan 2023 committed to implement the recommendations from the Food Vision sectoral groupings. These are reflected in the key metrics below:

Table 16.5 – Key Metrics to Deliver Abatement in Agriculture¹²⁷

Theme	2025 KPI	2025 abatement (vs 2018) MtCO ₂ eq.	2030 KPI	2030 abatement (vs 2025) MtCO ₂ eq.	2031-2035 measures
Reducing Chemical N Use	Maximum usage of 330,000 tonnes	0.4 – 0.45	Maximum usage of 300,000 tonnes	0.1 – 0.2	Ensure that new mitigation technologies and innovations are adopted as they become available through incorporation in agri-food strategy and policy
Increased Adoption of Inhibited Urea	Target 80%-90% replacement of CAN with Inhibited urea	0.35 – 0.45	Target 90-100% replacement of CAN with Inhibited urea	0.08 – 0.12	

¹²⁷ Appropriate KPIs have not been established for all abatement actions, so the total abatement from KPIs in this table is less than total sectoral target abatement

<p>Earlier Finishing of Beef Cattle (26 to 22-23 months)</p>	<p>Continue current trajectory of earlier finishing</p> <p>Target 24-25 months average finishing age by 2025</p>	<p>0.25</p>	<p>Target 22-23 months average finishing age by 2030</p>	<p>0.48</p>	
<p>Mobilise recommendations of the Food Vision sectoral groupings for livestock farmers and support land use diversification</p>	<p>Production of up to 1 TWh of Biomethane by 2025¹²⁸</p> <p>Target up to 250,000 ha</p>	<p>1.4</p>	<p>Production of up to 5.7 TWh of Biomethane by 2030</p> <p>Target up to 450,000 ha of organics by 2030</p> <p>Target up to 400,000 ha of tillage by 2030</p>	<p>0.4</p>	<p>Further development of diversification options</p>

¹²⁸ CAP 2023 included a separate KPI based on a target number of AD plants. This KPI has now been removed, as the 2025 and 2030 targets for biomethane production measure the same deliverable

options such as anaerobic digestion, forestry and tillage	of organics by 2025 Target up to 360,000 ha of tillage by 2025				
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16.4 Citizen Engagement

Key insights were gathered at the Climate Conversations 2022 and 2023 hosted by the Department of Environment, Climate and Communications. They included:

- The agriculture sector was the second-most mentioned sector in terms of what climate change will affect the most (43% of respondents mentioned), 74% of respondents think the agri-food sector is 'very important' in delivering climate action;
- Some farmers felt that the level of climate action expected from the sector was unfair, and that it is not being recognised enough for what has already been done;
- Furthermore, many farmers already feel they are stewards of the land, with some of the work they do for biodiversity, such as hedgerow management, not being well recognised;
- 69% of respondents overall also responded that it was 'very important' to change the way we consume food, raising issues such as emissions from production, supporting local produce, health and reducing waste.

16.5 Just Transition



Integrated, Structured, evidence-based approach

The Programme for Government commits €1.5 billion funding from carbon tax receipts for the new results-based Agri-Climate Rural Environment Scheme (ACRES), which rewards farmers for undertaking measures with a range of environmental benefits, including for biodiversity, climate and water quality. The Co-operative element of ACRES is based on local action planning, with farmers as the leading actors of change, collaborating with a local co-operation project team, to assess and address regional ecological priorities.

The Right Skills

The National Economic and Social Council's report on *Just Transition in Agriculture and Land Use* (2023) notes that the transition journey must be underpinned by a commitment to continuous learning. The agri-food and forestry workforce will need new skills, requiring identification of the existing and emerging competences and skills. Emerging areas such as bioeconomy (including supply chains), biodiversity, nature-based solutions and renewables would be particularly relevant, in agri-food as well as other related sectors.

Equitable Impact

The Council recommends a firm commitment to fairness, as embedded in the idea of just transition, recommending development of an effort-sharing strategy based on additional investment in research, data collection, evidence and monitoring of the distributional impacts across the agriculture and land use sectors, informed by new research considering existing and potential mechanisms.

Dialogue

Socially inclusive dialogue and participation is also identified as central to ensuring an equitable transition. The NESC's report recommends that, for the agriculture sector, local and context-specific participation in innovation and experimentation be built on, so that successful initiatives can be scaled up nationally. A wide and participatory process of further engagement is recommended to build a greater sense of shared direction in the sector.

16.6 Actions and Updates

16.6.1 Actions for 2024

Our 2030 decarbonisation ambition will require all sectors to increase emission mitigation actions if we are to achieve our national and EU targets. For the agriculture sector, the following measures will be critical to success:

Significant Reduction in Nitrous Oxide Emissions by Changing Farm Management Practices in relation to Nutrient Use

Nitrogen is a key nutrient which, when applied to land, promotes plant and crop growth. However, this application generates emissions of nitrous oxide and can result in air and water pollution. This sector has the opportunity to reduce chemical fertiliser use by the end of the decade, with a maximum usage target of 300,000 tonnes set for the sector. Over the last number of years, sales of chemical nitrogen fertiliser have been increasing to a peak, in the Act's base year of 2018, of 408,000 tonnes. The increase in prices in 2022 related to the wider geopolitical and energy price shock together with action on reduced usage by the sector led to a decrease in sales of chemical nitrogen in Ireland of 14%. Official data suggest that volumes continued to fall in 2023, despite price decreases. It will be important to maintain this trend, through the use of more low emission fertilisers and nutrient management practices.. Nitrogen application is also heavily influenced by nitrates legislation that governs water quality.

The Government is supporting a shift to more efficient and lower-emission nitrogen use by:

- Supporting the establishment of multi-species swards and clovers in pastures, which reduce chemical nitrogen requirements through fixing atmospheric nitrogen in our soils;
- Funding adoption of low emissions slurry spreading systems;
- Supporting transition to organic farming.

Increase Focus on Low Methane Traits within Animal Breeding Programmes

The new carbon sub-index was added to the Economic Breeding Index, the dairy breeding index in November 2022 which will help the sector move towards genetically selecting for lower emission animals.

In May 2023 the Minister for Agriculture, Food and the Marine announced a world-first scientific breakthrough that can enable the reduction of methane from the Irish cattle herd through animal genetics. This will be possible because of the publication of methane evaluations which will enable breeding programs to reduce daily methane emissions in beef cattle.

The research to underpin this is a result of a €3 million project "GREENBREED", funded by DAFM. The project has led to the publication of the world's first national genomic evaluations for methane emissions in Irish beef cattle. The work indicates that breeding programs to reduce

methane emissions will be effective for selecting low-emitting livestock, especially when undertaken in tandem with the national genomic evaluations, such as the age at slaughter evaluations released in 2022.

To advance this mitigation measure, data collection is key. For example, currently only half of our dairy herd have their individual milk yields recorded. This must increase to 90% by the end of the decade.

The implementation of a low methane emitting breeding programme has significant potential to harness the genetic variation for methane emissions that exists within the national herd. This, in turn, will bring about permanent and cumulative reductions in the methane output of future generations of livestock.

Low Emission Feed and Fertiliser

Key to delivery of our climate targets in the agri-sector will be the provision of low emission animal feeds and low emission fertilisers. Significant resources are currently employed to advance these technologies to the point that they can be deployed on Irish farms. Low emission animal feed that includes ingredients such as lipids, methane inhibitors, halides (oxidising methane inhibitors) and a lower protein content offer real promise as a sustainability measure. Food and feed safety will always come first with all feed ingredients needing to meet regulatory, safety and necessary research requirements. Incorporation of these technologies and in particular advancement towards a methane inhibitor that can reduce emissions significantly while animals are grazing outdoors will be key to the delivery of absolute emissions reductions in the second carbon budget period.

Nevertheless, it is important to recognise that whilst these technologies offer promise, and their implementation is currently built into the sector's emissions reductions plans from 2025 onwards, they are still at early stages of research. Policy measures to incentivise their use will also need careful consideration.

Also key to reducing emissions will be the use on Irish farms of low emission fertilisers, with more options and products being currently researched and developed. Replacement of calcium ammonium nitrate fertiliser with inhibited urea and urea with a nitrification inhibitor together with the use of low emission compound fertilisers with high ammonium content rather than a high nitrate content. There is also increasing potential for the use of bio-fertilisers and digestate

coming from a developing biomethane industry to replace chemical nitrogen combined with more efficient use of existing animal slurries through achieving our targets for low-emission slurry spreading.

Support Transition to Alternative Land Uses through Diversification Options

There is a clear need to enhance the sector's contribution across food production, climate change mitigation and resilience, and energy security of a decarbonising system. There are also issues to be addressed around food security and food demand, and the importance of avoiding impacts on food availability and affordability. Increasing the volume of home-grown proteins and cereals to support our livestock sector is a key objective.

In order to address these areas, recommendations arising from the Food Vision sectoral groupings will be mobilised, including to incentivise voluntary livestock reductions, and to develop a proposal for a cow reduction or exit scheme. To have an impact, it is essential that any voluntary reduction is structured in a way that ensures that reductions in breeding ruminants on a participating farm are not offset by increases in breeding ruminant numbers. Livestock farmers will be provided with diversification options, for example, in the following key areas:

- Organics;
- Cultivation of biomethane feedstocks;
- Tillage;
- Afforestation;
- Reduced management intensity of grasslands and water table management on drained organic soils.

Increase Organic Farming

Ireland's current level of organic farming, at 3.6%, is low when compared to the rest of Europe, which is at an average of 9.9%. Roughly 176,000 hectares of land is currently used for organic farming, in an agricultural landbank of 4,883,600 hectares. Under the EU Farm to Fork Strategy, the EU has committed to an overall target of reaching at least 25% organic farming by 2030. Ireland's target of 250,000 ha by 2025 and 450,000 ha (10%) by 2030 is considerably larger than our current rate of organic farming, requiring an almost 150% increase by 2030. This will help to further reduce fertiliser and pesticide use, resulting in associated environmental benefits.

The abatement potential of 0.1 Mt/100,000/ha from organic farming as set out in the plan is based on an expected reduction of 10% in stocking rate by those converting to organic farming. The average stocking rate for livestock farmers in the National Farm Survey is 1.2 LU/ha. Attracting these farmers to organics through direct policy intervention such as ranking and selection or otherwise would increase the abatement potential from organic farming to 0.18 Mt/100,000 ha.

Ireland's Common Agricultural Policy Strategic Plan incentivises a dramatic increase in organic farming. The new Organic Farming Scheme opened for applications in Autumn 2022 and resulted in a doubling of the number of farmers farming organically. The next opening of the scheme is planned for Autumn 2023 and there has been an increase in budget allocation for the scheme from €13 million in 2022 to €36 million in 2023 and now €57 million for 2024 which shows the Government's commitment to organic farming. In addition, substantial advisory supports have been introduced for organic farming. The Agricultural Consultants Association have received funding from DAFM in 2022 and 2023 to upskill advisors and hold organic farm walks. Teagasc and DAFM jointly fund the new Growing Organics monitor farm programme which was launched in Spring of 2023 and will run for 5 years promoting best practice at farm level.

In 2023 a new €1million promotional call for projects to support and promote organics was held and these new projects will run to December 2024. There is substantial leakage from the organic sector at the moment, up to 60% of lamb and approximately 30% of organic beef is lost to the conventional sector. Options will be explored in 2024 to ensure more organic product is retained in the sector. In 2023 Bord Bia received €1.5 million in BAR funding to carry out market research and undertake promotional campaigns to increase consumer awareness of the benefits of Irish organic produce and ensure a premium price is achieved.

Bord Bia applied for EU funding to undertake a 3-year promotional campaign for Irish pasture fed organic beef and sheep. This application for funding was successful and a campaign worth €2.7 million will run in our key export markets of Austria, Belgium, Germany and Sweden and from April 2024 for 3 years.

Agri-centric Biomethane Production

Government has committed to delivering up to 5.7 TWh of indigenously produced biomethane, which will require an Anaerobic Digestion (AD) industry of scale to deliver. AD and the production of biomethane is at a nascent stage of development in Ireland and it is clear that there is a need for an all-of-Government approach to deliver on this ambition.

The National Biomethane Strategy identifies actionable recommendations to guide and stimulate the industry and mobilise the 5.7 TWh target. The strategy takes a short, medium, and longer-term perspective on sustainable biomethane production, and consider all economic, social, and environmental benefits and risks.

A dedicated AD and Biomethane Working Group was established under the auspices of the Heat and Built Environment Delivery Taskforce with the specific focus of delivering the Strategy. The working group is comprised of a multiplicity of stakeholders across Government who input at strategic level for their Government organisation and examine the types of supports and incentives necessary to kick start the AD industry. The group meets monthly to ensure policy alignment across planning, regulation and markets so the agriculture sector can deliver on its sectoral emissions reduction target, businesses can decarbonise their processes and Ireland can meet its EU renewable heat targets for 2030.

This renewable fuel will be essential to decarbonising other sectors of the economy, such as high-temperature industrial heat needs in manufacturing processes.

The strategy is currently at draft stage and when finalised will be agri-centric with the clear objective of providing a land diversification and income opportunity for farmers and highlight opportunities for their valued contribution to the decarbonisation of our energy system.

The introduction of the Renewable Heat Obligation (RHO) by 2024 will further incentivise the production of biomethane and support delivery of the 5.7 TWh target. The RHO will increase the use and production of renewable fuels for heat, while spreading the cost across consumers of non-renewable fuels. An initial impact analysis on potential obligation parameters has been carried out and has directly informed the basis of the next phase of stakeholder engagement activities. In August 2023 a public consultation was launched seeking feedback on the obligation proposals, including the obligation starting rate, the final target level and duration of the RHO

post 2030. Feedback received will support any final decisions taken in relation to the final structure and introduction of the RHO.

Tillage

The tillage and horticulture sectors are the most carbon-efficient sectors of Irish agriculture, and it is important that the area under cultivation in these sectors is increased. In 2022, there were approximately 348,500 hectares of tillage crops (cereals, legumes, beet, maize, oilseed rape, and potatoes) produced.

In 2023, there was a slight reduction (approximately 1%) in the overall area of tillage crops. 2023 was a challenging year for tillage farmers as a result of high input costs, significant reduction in grain price and adverse weather conditions that impacted on the sowing of both winter and spring crops. The adverse weather conditions continued into the harvest resulting in disruption to harvest operations.

There is scope to increase the area under tillage, despite increasing land competition from the dairy sector. There is also an opportunity for industry to exploit opportunities for high-value crops, based on changing consumer preferences, creating opportunities for the primary producer both in new food markets and bioeconomy efforts. There is a very clear opportunity to increase the volume of Irish grain being used in the high-value drinks industry, and as a source of protein for the livestock industry. For example, cereals are a key raw material for the Irish whiskey sector, a growing national industry. Tillage and horticulture by-products (for example stalks, stems, husks, wash water, and peelings) also hold value as part of the EU-supported circular bioeconomy for further chemical, packaging, medical, and construction material, and energy uses. The development of these new value chains will be driven by the new Bioeconomy Action Plan (see below).

The Minister for Agriculture, Food and the Marine established the Food Vision 2030 Tillage Group in May 2023 in order to address a wide range of challenges facing the sector. The remit of the Tillage Group is to advance the actions for the tillage sector identified in the Food Vision 2030 strategy, while also taking account of the targets set out in the Farm to Fork Strategy and the CAP23, including the target to sustainably grow the tillage area to 400,000 hectares by 2030.

The group comprises a wide range of stakeholders from across the tillage industry, has met on 6 occasions since it was established, and a draft interim report has been prepared.

Over the next decade, there is the potential to produce 40,000 hectares of beans which would provide a native source of proteins. Policy mechanisms to achieve this target include the increased Protein Aid budget from €3 million to €7 million under the Common Agricultural Policy Strategic Plan 2023 – 2027. An increase in overall tillage area will also naturally result in an increase in break crops such as beans. Protein crops are very good break crops and offer opportunities to reduce the use of plant protection products which will be important in the context of the Sustainable Use of Pesticides Regulation.

At a producer level, there are several nitrogen use efficiency measures that tillage farmers can consider to further reduce the environmental footprint of their holdings.

Bioeconomy Action Plan

As outlined in Food Vision 2030, a key goal of government is to “Embed the Agri-Food Sector in the Circular, Regenerative Bioeconomy”. This process must be supported with actions aimed at enabling innovation, experimentation, diffusion, cooperation, and networking in specific contexts. To address this need, “Bioeconomy Demonstration Initiative” schemes are now being offered under the EU Just Transition Fund and will be developed under the Shared Island Initiative. These funding opportunities will seek to develop regenerative, transformative bioeconomy demonstration initiatives relating to agriculture, horticulture, forestry, fisheries, and aquaculture that supports a food and biobased system that is good for people, farmers, nature, and business.

The Bioeconomy Action Plan will seek to develop innovation support services focused on the deployment of bio-based business models across all bio-based sectors. These innovation support services will support the establishment of sustainable biobased value chains through the development of cooperation approaches aligning natural capital, primary production and circular bioeconomy value chains and the development of cooperative business models. Additionally, as the production of agri-biomethane has emerged as a climate action for the agriculture sector, actions in this area will be co-established with bioeconomy progression to ensure that biobased products are co-developed as part of this expansion.

16.7 Actions

Table 16.6 sets out the sector specific roadmap of actions to 2025 that will support the delivery of Ireland’s carbon budgets and sectoral emissions ceilings. Table 16.7 specifically describes

the actions for delivery in 2024. Where these actions are high-impact actions new to 2024, they are also included in the 2024 Annex of Actions. The 2024 actions within the Annex will be reported on quarterly by the Department of the Taoiseach.

Table 16. 6 – Key Actions to Deliver Abatement in Industry for the period 2024-2025

Measure	2024 Actions	2025 Actions
Changing How We Fertilise Our Land	DAFM to fund establishment of multispecies and clover swards to reduce nitrogen dependence and enhance adaptation	
	Review maximum nitrogen limits as set out in Nitrates Legislation by Q2 2024, which is separate to reviewing conditions for granting of derogation status	
	Continue to fund LESS to contribute to nitrogen reductions	Continue to fund LESS to contribute to nitrogen reductions
	Provide support for the Protein Aid Scheme to support the production of legumes, which play an important role in fixing nitrogen from the atmosphere, resulting in reduced chemical nitrogen fertiliser usage and enhance adaptation and resilience	Provide support for the Protein Aid Scheme to support the production of legumes, which play an important role in fixing nitrogen from the atmosphere, resulting in reduced chemical nitrogen fertiliser usage and enhance adaptation and resilience

Measure	2024 Actions	2025 Actions
Improving the Efficiency of Our Animals	Promote improved animal breeding through focusing on low-methane traits	Promote improved animal breeding through focusing on low-methane traits
	Low emission animal feeding – continue to work with all stakeholders to develop a methane inhibitor suitable for pasture grazing animals	Low emission animal feeding – continue to work with all stakeholders to develop a methane inhibitor suitable for pasture grazing animals
	Continue to develop technologies to reduce methane from stored animal slurries and manures	Continue to develop technologies to reduce methane from stored animal slurries and manures
Expanding Our Organic Sector	Provide financial support to farmers who convert to organic farming	Provide financial support to farmers who convert to organic farming
Providing options to livestock farmers to voluntarily reduce livestock numbers and diversify land use	Mobilise the recommendations of the Food Vision sectoral groupings regarding voluntary reduction measures for livestock farmers and support land use diversification options such as anaerobic digestion, forestry and tillage	Mobilise the recommendations of the Food Vision sectoral groupings regarding voluntary reduction measures for livestock farmers and support land use diversification options such as anaerobic digestion, forestry and tillage

Measure	2024 Actions	2025 Actions
Expanding Our Domestic Biomethane Industry	Introduce obligation in the heat sector, incentivising the production of indigenously-produced biomethane	
	Establish a Biomethane Coordination Group to oversee delivery of 5.7 TWh target and National Biomethane Strategy implementation activities	

Table 16.7– 2024 Actions

Action Number	Action
AG/24/1	Encourage farmers to establish multi-species and clover swards to reduce N dependence
AG/24/2	Encourage farmers to apply lime where necessary to correct soil pH
AG/24/3	Encourage farmers to reduce use of Chemical Nitrogen
AG/24/4	Encourage, and where appropriate, require farmers to take soil samples to establish soil nutrient status and soil pH
AG/24/5	Implementation of the ACRES scheme
AG/24/6	Provide support for the Protein Aid Scheme to support the production of legumes, which play an important role in fixing nitrogen from the atmosphere resulting in reduced chemical nitrogen fertiliser usage
AG/24/7	Review maximum N allowances

AG/24/8	Deliver a range of knowledge transfer activities promoting the importance and benefits to farmers of optimising nutrient management strategies as a key contributor to reduced gaseous emissions
AG/24/9	Explore policy options and industry incentives to increase the usage of inhibited urea (including protected urea with a nitrification inhibitor) by Irish farmers
AG/24/10	Review and identify measures from the Teagasc 2023 MACC that can contribute to reducing emissions from nitrogen fertiliser and incorporate them into the Climate Action Plan
AG/24/11	Review and identify measures from the Teagasc 2023 MACC that can contribute to reducing all GHG emissions and incorporate them into the Climate Action Plan
AG/24/12	Implementation of the Common Agricultural Policy Strategic Plan (CSP)
AG/24/13	Encourage genetic improvement of the bovine herd
AG/24/14	Low emission Animal Feed – Continue to work with all stakeholders to develop a Methane Inhibitor suitable for pasture grazing animals
AG/24/15	Develop technologies to reduce Methane from stored animal slurries and manures
AG/24/16	Develop a system for the monitoring and reporting of methane reducing feed ingredients
AG/24/17	Increase the functionality and both the analytical and reporting capabilities of AgNav
AG/24/18	Develop a pilot programme for the incorporation of methane reducing additives (enteric and manure) within the Signpost dairy farms

AG/24/19	Ongoing emphasis through knowledge transfer activities on the importance and benefits to farmers of optimised animal breeding and feeding strategies for overall animal performance, including reduced finishing age and reduced age at first calving in suckler heifers
AG/24/20	Promote improved animal breeding through focusing on low methane traits
AG/24/21	Identify and address the research and knowledge gaps around supply of feedstocks, the role of biobased products including digestate and the sequestration potential regarding biomethane production
AG/24/22	Establish a Biomethane Coordination Group to oversee delivery of 5.7 TWh target and National Biomethane Strategy implementation activities
AG/24/23	Provide support to growers to increase their area under tillage crops
AG/24/24	Development of the obligation in the heat sector and incentivizing the production of indigenously produced Biomethane
AG/24/25	Provide financial support to farmers who convert to Organic Farming
AG/24/26	Development of ecosystem services through the creation of a carbon farming framework

17. Land Use, Land Use Change, and Forestry

Key Messages

Changing Emissions Baseline

2018 emissions for the Land Use, Land Use Change and Forestry (LULUCF) sector have fluctuated in the last three National Inventory Reports (NIR).

- Emissions baseline as used for the carbon budgets: 4.8 MtCO₂eq.
- Revised 2018 emissions as reported in the 2023 inventory: 6.26 MtCO₂eq.
- Emissions in 2022 based on the latest 2023 data: 7.31 MtCO₂eq.

Trends in the Sector

The reported emissions in the LULUCF sector remain in flux as our understanding of emissions and activity for this sector advances. The 2018 baseline, as reported in the 2021 NIR has in the latest 2023 report increased by 31%. The most recent refinements were driven by changes in the emissions factor for forestry on peat soils.

Multiple inventory refinements are scheduled for the coming decade, resulting in further fluctuations to the baseline, in parallel with current and projected emissions trends for the sector out to 2030 and beyond.

Key Targets

Theme	2030 KPI
Forestry	Afforestation rates of 8,000 kha/year
Cropland	Cover Crops: 75,000 ha
	Straw Incorporation: 85,000 ha

Grasslands	Optimal management of grassland on 450,000 ha of grassland on mineral soils
	Reduced management intensity of 80k ha of grasslands on drained organic soils
Wetlands	Rehabilitate 33,000 ha of exploited Bord na Móna peatlands
	Additional 30,000 ha exploited peat rehabilitated
Hedgerows	Plant 2,000 km New Hedgerows

Measures and Actions

In tandem with the agriculture sector, the LULUCF sector is undergoing a significant transformation to deliver reductions in GHG emissions and increase removals of CO₂. Guided by the Food Vision 2030 Strategy, Irish farmers and food producers will prioritise delivery of environmental, social and economic sustainability.

We are doing this through actions in the following areas:

- Achieving and maintaining afforestation rates for sequestration
- Increasing sequestration in tillage land and grassland on mineral soils
- Reducing greenhouse gas emissions from of grasslands on drained organic soils
- Promoting carbon farming
- Rehabilitation of exploited Bord na Móna peatlands and seeking additional area for rehabilitation

17.1 State of Play

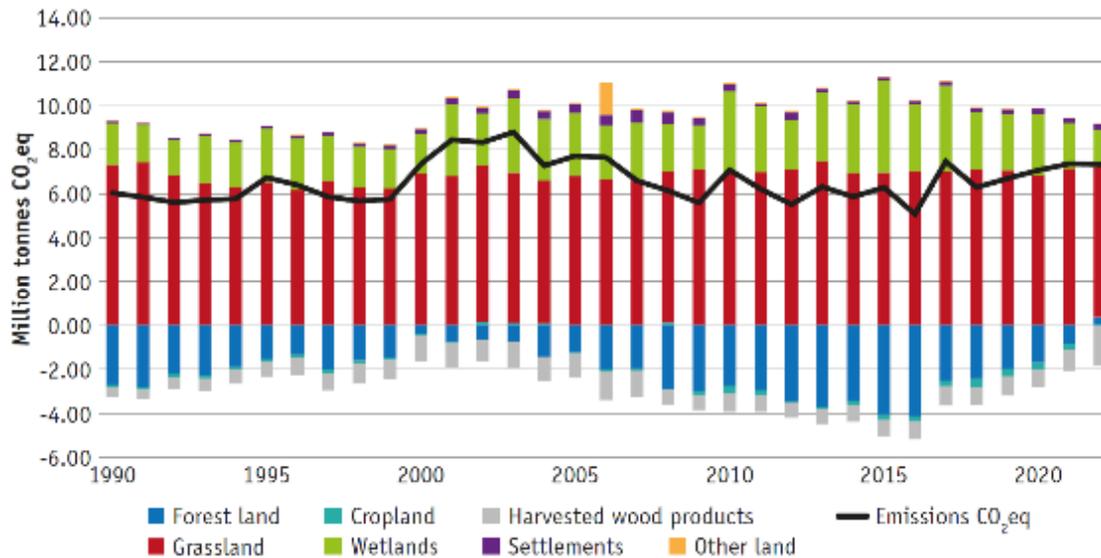
17.1.1 Emissions Profile to Date

The LULUCF sector differs from the other sectors in that the location and land on which an activity takes place or could take place has a significant impact on its emissions and sequestration profile. Emissions and mitigation levers are predominately biological and therefore have bio-physical and temporal limits. The impact of legacy activity is a major influence on the sector today and into the next decade. The Environmental Protection Agency's (EPA) "With Existing Measures" (WEM) scenario¹²⁹ projects that LULUCF emissions will continue to rise by 54% by 2030. This increase is driven mainly by the age and management profile of our forest stock as our 1990s plantings mature and are harvested.

The sector's temporal and biophysical factors underscore the need to take a multi-decadal and holistic approach. We are, therefore, proposing an alternative compliance pathway for this sector. This proposal is no less ambitious or challenging than the others, but it reflects the specific characteristics of land use, accounts for the bio-physical and temporal reality, is feasible and aligns with our longer-term climate objectives out to 2050.

¹²⁹ EPA (2023), Ireland's Greenhouse Gas Emissions Projections, 2022-2040

Figure 17.1 – LULUCF Emissions and Removals 1990-2022¹³⁰



The LULUCF sector has been a net source of greenhouse gas (GHG) emissions in all years from 1990 to 2022¹³¹. As shown in Figure 17.1, the Grassland and Wetlands categories drive emissions, primarily due to drained grasslands on organic soils and exploited wetlands for peat extraction. Forest Land and Harvested Wood Products have been a significant carbon sink since 1990. Since the foundation of the State, forest cover in Ireland has grown significantly from 1.4% of the land area to 11.6% but it is still below the national target of 18% as outlined in Ireland’s recently published Forest Strategy¹³².

Emissions for the sector in 2022 were 7.31 MtCO₂eq. and they represent a 10.7% share of overall emissions with 1.42 tCO₂eq. per capita – a reduction from the total share in 2021 of 11.2% and 1.55 tCO₂eq. per capita. Emissions from the LULUCF sector decreased by 0.5% between 2021 (7.34 MtCO₂eq.) and 2022 (7.31 MtCO₂eq.) mainly due to emissions reductions related to the rehabilitation of lands formerly used for the industrial harvesting of peat soil. However, the overall trend to date has been a 16.6% increase compared to the current 2018 baseline of 6.26 MtCO₂eq.

¹³⁰ Reproduced from EPA (2023) *Ireland's Provisional Greenhouse Gas Emissions 1990-2022*

¹³¹ EPA (2023) *Ireland's Provisional Greenhouse Gas Emissions 1990-2022* www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/irelands-provisional-greenhouse-gas-emissions-1990-2022.php Note that provisional data for the LULUCF sector for 2022 are based on projections and are subject to revision when final data are submitted to the EU and UN in 2024

¹³² DAFM (2022) *Ireland's Forest Strategy Implementation Plan – Draft for public consultation*, <https://assets.gov.ie/237551/b0af026a-cc3a-4e92-a833-80ed6ae846fe.pdf>

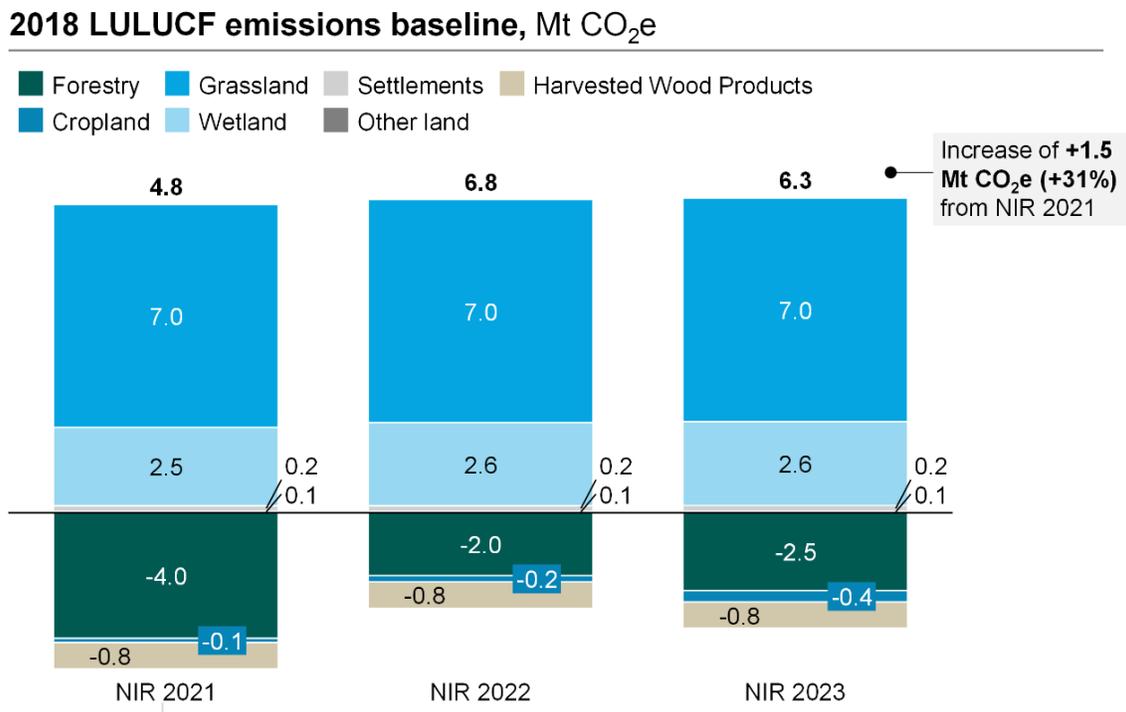
Table 17.1 – Latest GHG Emissions (2022) and trends since 2018

Timeframe	2018 Emissions MtCO ₂ eq.	2022 Emissions MtCO ₂ eq. (share of total GHG emissions)	Percentage Change
2018-2022	6.26	7.31 (10.7% of total)	+16.6%

17.1.2 Fluctuating LULUCF Baseline Emissions

The 2018 baseline emissions for LULUCF have been refined each year since the carbon budgets were set e.g., there was a baseline increase of 31% from the NIR of 2021, from 4.8 to 6.3 MtCO₂eq. in the 2023 NIR. This has primarily been driven by an improved understanding of the emission factors for forestry on peat soils. The result of this was an increase in the emissions factor from 0.59 to 1.68 tC/ha/year for this land use type.

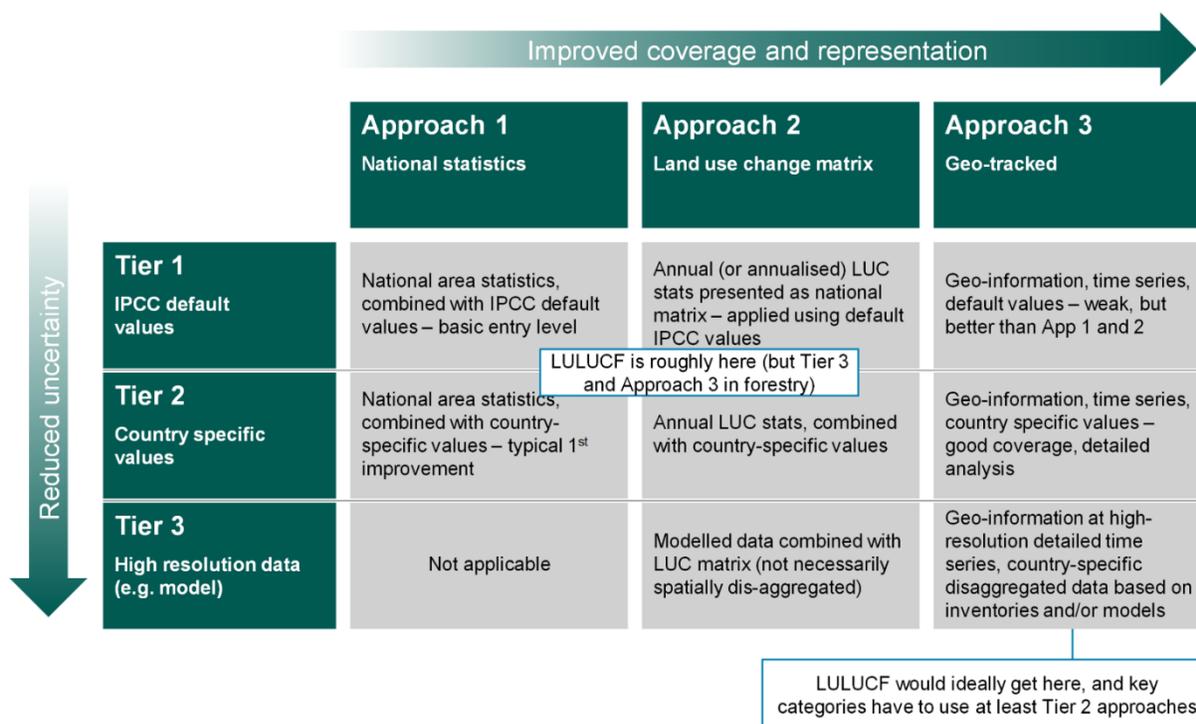
Figure 17.2 – Recent fluxes in the LULUCF baseline¹³³



¹³³ Environmental Protection Agency, National Inventory Reports (2021, 2022, 2023)

Refinements to the inventory for all categories are a feature of the international monitoring and reporting process. Countries must improve their data collection and reporting and move away from “book values” to more refined and site-specific values gathered through research, mapping and data improvements (see Figure 17.3). For each refinement there is a need to recalculate the emissions reported all the way back to 1990, to ensure that we are comparing like with like. LULUCF is starting from a lower base and has further to travel than the other more generic fossil fuel-based sectors. Inventory refinements will continue until at least the end of the decade. Upcoming anticipated changes include revisions to the drainage status and associated emissions factors for grassland on peat soils in response to recent research¹³⁴.

Figure 17.3 – Increased inventory refinement requirements under EU LULUCF Regulation



17.2 A New Approach to Achieve our Goals for LULUCF

Concurrent with these inventory refinements, the emissions from this sector are projected to increase. The EPA’s WEM scenario projects that LULUCF emissions will increase by 54% from

¹³⁴ See, for example, Tuohy, P., O’Sullivan, L., Bracken, C. J., & Fenton, O. (2023). Drainage status of grassland peat soils in Ireland: Extent, efficacy and implications for GHG emissions and rewetting efforts. *Journal of Environmental Management*, 344, 118391.

the current 2018 baseline to 9.67 MtCO₂eq. by 2030. The main drivers of these increases are the cyclical nature of forest harvests and legacy issues on Forest Land. Plantings from the 1990s are now maturing and ready for harvest. Once harvested they will cease to sequester carbon until they are fully re-established.

New research shows that legacy peatland forests can become net emitters after 2 to 3 rotations and are no longer capable of net sequestration. Forest management options on these peat soils will need to be carefully considered. Management options will include redesign, rewetting, rewilding and replanting. However, the restoration of these lands requires careful management. Their restoration may give rise to an overall increase in emissions during the period of rehabilitation (deforestation and rewetting), before reducing and stabilising as the restoration measures fully take effect.

Finally, many of the emissions and mitigation levers for this sector are predominately biological and, therefore, have bio-physical and temporal limits. The mitigation potential of afforestation and reforestation is limited in the first 10 years. The sequestration rate of trees is low at first and increases after 10 years as they mature. Thus, plantings now at any scale will not contribute much in the way of sequestration out to 2030, yet they will be critical post 2030.

Therefore, a LULUCF sectoral emissions ceiling that is based on a percentage reduction target from a set point is problematic when that point is in flux, as the LULUCF sector's baseline is, and will be. Furthermore, any pathway for this sector must not only take into account a starting point that is in flux, but the bio-physical limitation of many of the levers and legacy issues that are driving up future emissions. The socio-economic impacts and feasibility of proposed measures must also be assessed to determine which actions are possible to deliver. Land availability and the necessary statutory requirement to protect species and habitats will have a significant impact on lands available for afforestation.

17.2.1 Proposal for an EU-type Reporting Approach for LULUCF

We will deal with the ongoing flux in the sector whilst delivering significant abatement. To do this the LULUCF sector will now pursue an approach that is more aligned to how the EU LULUCF Regulation deals with the fluctuations and limits within the LULUCF sector. This new approach will set us on a pathway to achieve our goals for this sector allowing for: the setting of activity targets and annual key performance indicators (KPIs), sectoral accountability, and a 2030

emissions reduction target. The pathway will be subject to future reviews considering the Land-use Review, ongoing inventory refinements, and any future developments in terms of international and national commitments.

These activity levels are based on the abatement levers from established research and the recent LULUCF MACC published by Teagasc. They will be the first step to allow Ireland to comply with its existing commitments under the Revised EU LULUCF Regulation within the biophysical limits of the sector. However, it will be necessary to review and amend these activity levels to align with the EU LULUCF Regulation target and the demands on this sector from our national and international ambitions and commitments, and evolving science, to provide for the achievement of climate neutrality by no later than 2050.

In 2023 there was a revision to the EU legislation for LULUCF as part of the EU Fit for 55 package. This revision set binding LULUCF targets for Ireland. The EU legislation requires Ireland to meet a 2030 emissions reduction target and comply with a 2026-29 carbon budget. The 2030 distance to target for Ireland for LULUCF is fixed at 0.626 MtCO₂eq. below a baseline set at the average of the 2016-2018 emissions.

Under the EU approach, even as the baseline changes the absolute emissions reduction required or distance to target remains constant. EU legislation also requires Irish LULUCF emissions to stay within a carbon budget for period 2026-29. This carbon budget is determined based on reaching the 2030 target on a linear emissions reduction pathway from average emissions between 2021-2023. The carbon budget is, therefore, responsive to current emissions levels as well as continued emissions fluctuations.

Under the EU legislation, a 2030 target and the 2026-29 carbon budget are now mandatory for Ireland's LULUCF sector. The 2026-29 carbon budget is not yet fully defined as discussed further below (see Section 17.3.2).

The ambition for this sector shall now be a fixed reduction of 0.626 MtCO₂eq. by 2030 below a baseline set at the average of the 2016-2018 emissions, with activity levels identified in 2024 through a review of the Teagasc MACC and other measures. This EU-type approach also retains the core ambition of the Climate Act: the LULUCF sector will have binding and ambitious emissions-reduction targets, and actions that are updated annually, as with other sectors, with

the Minister for Agriculture, Food and the Marine, coordinating with the Minister for Housing, Local Government and Heritage, having responsibility for its delivery.¹³⁵

In addition, this treatment of Irish LULUCF will be aligned with the EU LULUCF framework and all other Member States which will allow for less complex and more straightforward reporting of emissions and evaluation of progress towards targets.

Box 17.1 Periodic review of the new approach for LULUCF

Periodic Review of the New Approach for LULUCF

The new approach for the LULUCF sector will require ongoing review in line with the carbon budget cycle, so as to ensure that the targets remain ambitious and in line with national objectives. This would specifically be a review of the proposed approach and activity levels described above, as distinct from the annual updates of measures and actions in the annual Climate Action Plan.

A review of the new approach for LULUCF in advance of the second carbon budget period, which runs from 2026-2030, will commence no later than Q2 2025 to facilitate the incorporation of the outcomes of this review into the Climate Action Plan for 2026. At a minimum, a further review will commence in advance of the 2031-2035 budgetary period in Q1 2030.

The periodic review will allow for ongoing integration of national and international developments, such recommendations from the Land-use Review, further inventory refinements, evolving international commitments.

17.2.2 Further Details of Revised EU LULUCF Regulation

On 11 May 2023, revisions to the existing EU LULUCF Regulation came into force as part of the EU Fit for 55 Package. The revision sets an overall EU-level objective of net removals of 310 MtCO₂eq. for the LULUCF sector in 2030. Ireland has a target to reduce net LULUCF emissions

¹³⁵ Synthesis of core logic in DECC (2021) "Ireland's ambitious Climate Act signed into law". Cf. Climate Action and Low Carbon Development (Amendment) Act 2021

by 0.626 MtCO₂eq. by 2030, relative to a baseline of the average values for 2016, 2017 and 2018.

EU legislative proposals were based on data from the 2020 inventory submissions. Submissions for Ireland provided a baseline of 4.354 MtCO₂eq. and a resulting 2030 target of 3.728 MtCO₂eq. However, this legislation specifically accommodates flux in the LULUCF sector. The “distance to target” (also referred to as “delta target”) is a constant 0.626 MtCO₂eq. reduction in net LULUCF emissions by 2030. This distance to target does not change with revisions to the baseline. For example, based on Ireland’s most recent NIR 2023, while the 2016-18 baseline has increased to 6.246 MtCO₂eq., Ireland’s delta target of reducing net land-use emissions by 0.626 MtCO₂eq. will remain unchanged, and the new resulting 2030 target will increase to 5.620 MtCO₂eq.

The revised EU LULUCF Regulation has a two phased approach. Until 2025, old EU regulations based on the “no debit” rule (where accounted LULUCF emissions are to be compensated by an equivalent emissions removal within the sector) are largely in place. For 2026-29, a carbon budget is set. The budget is determined by an assumed linear reduction in emissions starting from 2022. The starting point is based on average emissions from 2021, 2022 and 2023 and the end point based on the 2030 target. This calculation method is depicted in Figure 17.4.

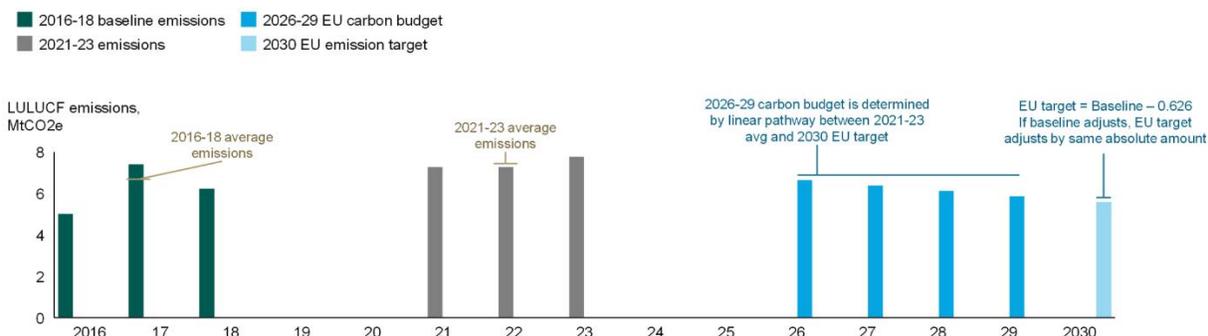
Given that emissions data for 2023 will not be finalised until 2025, the 2026-2029 budget can currently only be estimated. Based on projected emissions in the EPA’s WEM scenario¹³⁶ and the current understanding of LULUCF emissions¹³⁷, it is estimated that a budget of approximately 24.8 MtCO₂eq will be available to Ireland for the period 2026-2029.

¹³⁶ EPA (2023), Ireland’s Greenhouse Gas Emissions Projections, 2022-2040.

¹³⁷ Based on the National Inventory Report 2023.

Figure 17.4 – EU Legislation Approach to setting a Carbon Budget and 2030 Target

The EU regulation approach implies a fixed abatement of 0.626 MtCO₂e by 2030, relative to baseline of 2016-18 average emissions



Following the EU-type approach requires compliance with:

- ① 2030 LULUCF target estimated at 5.62 MtCO₂e by 2030
- ② 2026-29 carbon budget, currently estimated at 24.8 MtCO₂e

17.3 Measures to Deliver Sectoral Abatement

17.3.1 Target activity levels, KPIs and abatement potential

Figure 17.5 sets out target activity levels to deliver LULUCF emissions reductions, which will also achieve the following goals:

- Establishing ambitious and feasible activity levels;
- Meeting Ireland’s commitments as part of wider EU goals for the LULUCF sector under the Fit for 55 package;
- Substantially contributing to the longer-term national forest cover target of 18% of land area.

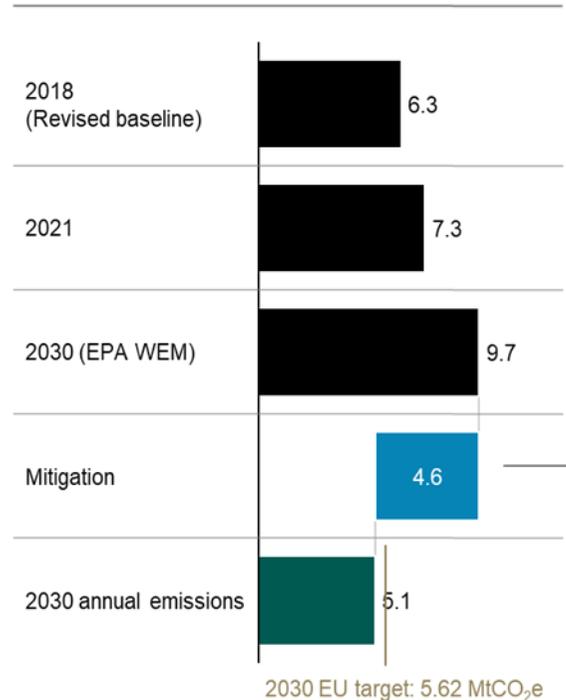
These activity levels are based on abatement levers from established research and the recent LULUCF MACC published by Teagasc,¹³⁸ and will provide abatement levels that will allow Ireland to comply with its existing commitments under the Revised EU LULUCF Regulation (see section 17.2). The activity levels required are those set out in the Teagasc LULUCF MACC for what is referred to in the Teagasc MACC 2023 report as “Pathway 2”, with some further refinements as noted in the footnotes below, plus rewetting of peatland that was not included in the Teagasc MACC. They build on and go further than the measures identified in CAP23. A

¹³⁸ Teagasc (2023), Marginal Abatement Cost Curve 2023

detailed mapping exercise, feasibility study and implementation plan for the sector will be a key deliverable in 2024.

Figure 17.5 – Pathway 2 from the Teagasc MACC 2023 plus wetland rewetting¹³⁹

Annual LULUCF GHG Emissions, MtCO₂eq.



Teagasc MACC 2023 Pathway 2 plus wetland rewetting

2030 KPI		2030 Abatement, MtCO ₂ eq.
Forestry	Afforestation: Afforest 8 kha/yr ^a	0.126
	Preventing deforestation on 495 ha/yr	0.140
	Afforestation: 2 kha agroforestry	0.015
	Extend rotation: 31% of forests	0.890
	Woodland conversion to birch in raised bogs: 17.9 kha	-0.002
Cropland	Cover Crops: 75 kha ^c	0.087
	Straw Incorporation: 85 kha ^c	0.095
	Manure to cropland: 112 kha ^c	0.056
Grassland	Optimal mgmt of grassland of 750 kha grassland on mineral soils ^c	0.556
	Altered water-table mgmt on 80 kha/yr of peat-based grassland	1.616
Wetland	Additional 30 kha exploited peat rewetted ^b	0.593
Hedgerows	Hedgerows: 40k km new, 75k km existing under management ^{c, d}	0.379
2030 Abatement, MtCO₂eq.		Total
		4.552

¹³⁹ Source: Teagasc (2023), MACC 2023; EPA (2023), Ireland's Greenhouse Gas Emissions Projections, 2022-2040

Footnote a. Afforestation abatement remodelled to reflect 50/50 split of broadleaf/commercial as per new Forestry Programme. Source of modelling: FERS Ltd, data funded by DECC under Foresight project. Methods used outlined in NFAP, 2020, Black et al., 2023, NIR 2022. 2023 afforestation rate equals 2022 rate, with subsequent rate ramp-up by +4 kha year-on-year until target rate is reached. Abatement potential measured relative to EPA WEM afforestation of 2.5 kha/yr to 2030

Footnote b. Estimated total peatland available for rewetting is 41.7 kha, based on preliminary statistical estimates from EPA

Footnote c. Abatement lever not aligned with emissions factors currently in NIR – requires update to NIR for abatement to be accounted for

Footnote d. Hedgerow availability may be overestimate given recent farm carbon project results. Farm carbon project shows its inclusion could result in an emission

These activity levels provide biologically feasible and ambitious, targets for 2030, and many of the abatement levers set out in this pathway are aligned with or increase the ambition of KPIs from CAP23.

Roughly 4.6 MtCO₂eq. of emissions in 2030 are abated against the projected WEM scenario emissions of 9.7 MtCO₂eq. to give annual emissions of 5.1 MtCO₂eq. in 2030, below the current EU 2030 target of 5.62 MtCO₂eq. This provides an approximate 1.1 MtCO₂eq. reduction against the current EU 2016-18 baseline of 6.246 MtCO₂eq., compared with the 0.626 MtCO₂eq. reduction in emissions required. However, this apparent overshoot on the 2030 target keeps emissions for 2026-29 to a total of roughly 24.8 MtCO₂eq., the currently estimated budget for this period. It therefore represents a pathway to meet the EU LULUCF binding targets that Ireland has committed to, including both the 2030 delta target and the current estimates of the 2026-29 EU carbon budget.

However, there are additional measures and levels of uptake explored in the Teagasc MACC that are untested and will require further evaluation and feasibility analysis considering the socio-economic and environmental impacts, including land availability for afforestation and extended rotation. For example, an estimate of hedgerow sequestration is not currently included in the LULUCF Inventory. Additional research is being carried out and it will provide better data. Such studies are not without risk, and it may be that this research shows that it is a net-emission rather than a net-removal due to the decline in the national hedgerow area. The suggested figure of 0.379 MtCO₂eq. from hedgerow measures, as shown in figure 17.5, may not be possible at this stage and other options may need to be considered, once again demonstrating the level of uncertainty in the LULUCF sector.

These activity levels replicate the abatement pathway provided by Teagasc in their 2023 MACC which achieved the EU point target for 2030. However, additional rewetting of exploited peat in the Wetlands category (beyond existing efforts to rewet Bord na Móna lands) is necessary to ensure compliance with current estimates of the EU legislation's 2026-2029 carbon budget (see section 17.2.2).

Regarding the national goals outlined previously, these activity levels:

- **Are ambitious and feasible:** The KPIs are ambitious and feasible. The non-forestry levers presented in Figure 17.5 are currently believed to be at their biophysical limits¹⁴⁰ and the afforestation rates are also ambitious;

¹⁴⁰ Based on Teagasc expert review, drawing on sources including Tuohy et al. (2023), O'Sullivan et al. (2023).

- **Meet Ireland's EU LULUCF commitments:** The 2030 KPIs and estimated pathways meet both the EU 2030 target of 0.626 MtCO₂eq. and the current estimate for the 2026-29 EU carbon budget;
- **Contribute to Ireland's expansion of national forest cover:** The proposed afforestation rates contribute to the national forest cover target by 2030 as envisioned by Ireland's Forestry Strategy (2023-2030).

17.3.2 Measures to Deliver Reductions

The Government is committed to peatland rehabilitation, enhanced delivery of afforestation, increased use of harvested wood products, and the reduction of emissions and increase in sequestration in mineral and organic soils.

This will be realised through:

- Delivery of the Ireland's Forest Strategy (2023-2030) and Forestry Programme 2023-2027, which includes a range of forest creation measures, including native woodland expansion and planting of small native trees areas;
- Continued funding to the Bord na Móna's Enhanced Decommissioning, Rehabilitation and Restoration Scheme (EDRRS) for 33,000 ha of post-production peatlands across the Midlands. To date 15,000 ha have been rehabilitated;
- Seeking opportunities for further peatland rehabilitation such as with People and Peatlands and other funding schemes;
- The continuation of state-led restoration of Ireland's national raised bog and blanket bog Special Areas of Conservation (SAC) and Natural Heritage Areas (NHA) network. These works are also funded by European programmes such as LIFE, INTERREG and others;
- Supporting Coillte's Strategic Vision which aims to capture additional CO₂ in its forests, soils and wood products by 2050. A Strategic Environmental Assessment in relation to Coillte's Strategic Vision is ongoing and this will provide further information in relation to mitigation options;
- Continuing to manage the Coillte estate to increase carbon storage by managing the age profile of our forests to improve carbon efficiency;
- Expanding proactive silvicultural management of our broadleaf estate, and redesigning peatland forests to improve the carbon balance;

- Continuing to support sustainable forest management (SFM) interventions across the entire forestry sector, through the Forestry Programme 2023-2027 and the Coillte Strategic Vision;
- Continued increased use of harvested wood products in the built environment by working to address barriers in construction;
- Continuing to support sustainable production of wood biomass for energy contributing to the reduction of fossil fuels;
- Developing carbon farming as a key enabler to seek opportunities for private finance to deliver key sequestration, emissions reductions in drained organic soils, and other land use measures;
- Reviewing the CAP Strategic Plan following the amended EU LULUCF Regulation and Effort Sharing Regulation, and other developments such as the National Energy and Climate Plan, Nature Restoration Law, and Phase 2 of our national Land-use Review;
- Creation of an Agriculture and Land Use Inventory Refinement Group to guide inventory refinement by identifying gaps in the inventory, potential research areas and identifying trends to facilitate provision of a robust LULUCF Inventory with less uncertainty.

17.3.3 Increase Afforestation and Improve Forest Management for Carbon Storage

Forests and forest products play an important role in mitigating climate change. Sustainably managed forests are a net absorber of carbon. Afforestation is one of the largest land-based, long-term climate change mitigation measures available to Ireland. Management of our existing forests also provides opportunities to increase carbon stores. DAFM will oversee the implementation of the new Forest Strategy 2023-2030 and the recently approved Forestry Programme 2023-2027, which will bring multiple benefits that forests provide, focusing on climate, nature, wood, people and the economy. We will:

- Incentivise increased afforestation to 8,000 ha per annum, This will start the process of having planting rates consistent with realising our 2030 ambition and contributing to achieving climate neutrality no later than 2050;
- Implement the Forestry Programme which is focuses on the importance of climate-smart forestry:

- The Forestry Programme provides for significantly increased premiums and grants for planting trees and extends the premium period from 15 to 20 years depending on the forest type;
- Provides for a broad range of planting options, including agroforestry;
- Develop, assess, and adopt as appropriate Coillte's Strategic Vision which aims to capture additional CO₂ in its forests, soils and wood products by 2050;
- Continue to manage the Coillte estate to increase carbon storage by:
 - Managing the age profile of our forest estate to improve its carbon efficiency;
 - Expanding proactive silvicultural management of our broadleaf estate;
 - Redesigning peatland forests to improve the carbon balance;
- Continue to support SFM interventions across the entire forestry sector.

17.3.4 Increase Incorporation of Straw

Chopping and incorporating the straw into the soil increases soil organic carbon, as organic matter is directly inputted back into the soil. Delivery of this target is through the Straw Incorporation Measure which seeks to support tillage farmers in undertaking actions which will increase soil organic carbon levels and deliver reductions in GHG emissions. It has proven hugely popular with tillage farmers since its introduction in 2021 and has exceeded previous 2030 targets with over 70 kha applied on in 2023. The challenge will be to maintain these areas with straw availability tightening on the back of a difficult growing conditions caused by changing weather patterns.

We will:

- Increase the incorporation of straw to at least 85,000 ha of tillage (cereal) area by 2030;
- Continue to fund the Straw Incorporation Measure;
- Implement the capital support measure for investments in the tillage sector as part of the CAP Strategic Plan;
- Consider the implementation of recommendations from the Food Vision 2030 Tillage Group;
- Continue the development of the necessary research and data to facilitate the inclusion of this measure in the national emissions inventories.

17.3.5 Increase Area of Cover Crop Planted

Maintaining a green cover over the winter period has many environmental, agronomic and economic benefits, including taking up any remaining nutrients after harvest, especially nitrogen, and reducing potential nitrate leaching over the winter period; improving soil structure and soil drainage; protecting soils from winter rainfall; and adding valuable soil organic matter over time.

Cover crop benefits have had greater recognition with increased take up in the last number of years, as a measure under ACREs and as a measure undertaken by farmers outside of scheme support, with total area estimated at approximately 40k ha.

We will:

- Increase the inclusion of cover crops in tillage to at least 50,000 ha by 2030;
- Implement measures in the CAP Strategic Plan to plant cover crops under the Agri-Environment and Climate Measure (AECM);
- Implement the capital support measure for investments in the tillage sector as part of the CAP Strategic Plan;
- Consider the implementation of recommendations from the Food Vision 2030 Tillage Group;
- Develop the necessary research and data to facilitate the inclusion of this measure in the national emissions inventories.

17.3.6 Improve Management of Grasslands on Mineral Soils for Increased Carbon Sequestration

The improved management of grasslands on mineral soils aims to improve level of soil carbon within the soil through sequestration. Many different practices support the enhancement of sequestration such as improved fertiliser management, soil fertility improvements including liming, non-inversion reseeding, increasing legumes such as clover, using multispecies and avoiding compaction.

Improving soil sequestration is linked with productivity improvements in grasslands by achieving an optimum balance between carbon and nitrogen inputs to soils and minimising inorganic fertilisers. Therefore, agricultural sector N₂O mitigation measures, and targets such as reducing inorganic fertiliser use, improving Nitrogen Use Efficiency and clover inclusion, also benefit soil carbon sequestration.

The CSP through the ECO schemes and ACRES has a range of measures that improve soil carbon sequestration. These include requirements for soil sampling and liming to improve soil fertility, planting of multispecies sward to a minimum of 6% of a farmer's eligible hectares, and limits and reductions in chemical nitrogen use.

Under the Nitrates Regulations, mandatory requirements for farmers under derogation have been introduced which include a compulsory liming programme, use of low emission slurry spreading, grassland management training, use of nutrient management plans, and soil sampling.

The Multispecies Sward Scheme introduced in 2022 incentivised farmers to plant multispecies by providing funding against the seed cost of sowing multispecies. In addition, under the ambitious Biomethane and Organic Scheme targets, a co-benefit for soil carbon sequestration will be realised by the necessity to improve soil fertility and to grow grass using clover and multispecies swards.

Analysis and assessment are required to provide an accurate estimate of the combined area of these measures for progress evaluation and to have the land-use-change benefits reflected in the LULUCF inventory.

We will:

- Improve the management of at least 450,000 ha of grassland on mineral soils for carbon sequestration by 2030;
- Implement measures in the CAP Strategic Plan to improve sequestration on mineral grasslands under the AECM and Eco-Schemes;
- Support the establishment of multi-species swards and clovers in pastures, which reduce chemical nitrogen requirements and increase sequestration;
- Implement mandatory requirements under derogation to enhance carbon sequestration under the Nitrates Regulations;
- Develop the necessary research and data to facilitate the improved certainty of reporting of this measure in the national emissions inventories.

17.3.7 Reduce Management Intensity of Grasslands on Drained Organic Soils

Reducing the management intensity of drained, agricultural, managed carbon-rich soils offers significant potential for reducing the CO₂ emissions from the land-use sector. There

are also co-benefits in terms of improved water quality, increased biodiversity, and enhanced resilience to changing weather patterns. Reduced management intensity of grasslands on drained organic soils is an umbrella term for activities including:

- Reducing the amount of fertiliser applied;
- Reducing the livestock stocking rate;
- Not cleaning drains and slowing the flow of water;
- Changing deep drains to shallow drains;
- Water table manipulation;
- Raising the water table to within 10 cm of the ground level.

The main aim of these activities is to slow the mineralisation of the organic matter resulting in a reduction in GHG emissions. Keeping the soil moist throughout the year is the most valuable in terms of CO₂ emission reductions, but a reduction in nutrient loading also contributes. These measures vary in their contribution to a reduction of emissions, but the exact quantum is uncertain due to current knowledge gaps.

It is an entirely new area of work with much uncertainty and complexity, which Ireland will need to pioneer an approach to. The uncertainty is caused by large data gaps in respect to the location of organic soils, the nature of land management and intensity, the drainage location and status and the level of GHG emissions emitted from these soils in varying states of wetness and management.

A major investment by DAFM in the National Agricultural Soil Carbon Observatory, which will see almost 30 flux towers monitoring GHG emissions and removals on varying soil types and conditions by the end of 2023, will provide much needed data to help establish accurate national specific emission factors for inclusion in the inventory based on Irish specific land management and biophysical conditions.

Two DAFM funded EIPs, Farm Peat and Farm Carbon, with over 70 farmers participating between them have been trialling reduced management activities on peat soils in the Midlands for the last two years. Both were extended in 2023, in terms of budget and time, to maintain momentum and continue to secure farmer participation as a transitional measure until the establishment of the Midlands Carbon Catchment Study outlined below.

Learnings from the EIPs has underpinned the ACRES General Scheme and Cooperation Projects which have rolled out results-based payments for peatlands under agricultural use and has resulted in approximately 180,000 ha of privately owned peatland being scored for habitat quality, and a further 420,000 ha of commonage has been scored in 2023 alone.

Further complimentary actions are in development, for launch in 2024, which will actively facilitate blocking peat drains where that is appropriate, and ultimately led by farmers willingness to engage.

In addition, the large-scale commitment to organic farming, as outlined in chapter 16, is delivering the reduced management intensity of drained organic soils. A preliminary figure of 20 kha, which has some form of reduced management intensity is estimated across ACREs, ECO schemes, EIPs and the Organic scheme. However, a cautious approach is advised until the research is robust enough to accurately reflect the profile of these changes in the inventory.

To continue building momentum, we will:

- Reduce the management intensity of at least 80,000 ha of drained, agricultural, managed, carbon-rich soils by 2030;
- Launch a call for a Midlands Carbon Catchment Study which will seek to research innovative ways of reducing emissions from organic soils by working with farmers at a catchment level to test new and novel ways of alternative, sustainable land management, and to explore new economic models such as carbon farming;
- Implement measures in the CAP Strategic Plan to reduce management intensity under the AECM and Eco-schemes;
- Improve peatland mapping by continuing to fund the RePEAT Project;
- Develop the necessary research and data to facilitate the improved certainty of reporting of this measure in the national emissions inventories.

17.3.8 Peatland Rehabilitation

Peatlands cover 21% of our land area, and 64% of our total soil organic carbon stock. They are the largest store of carbon in the Irish landscape and are a significant component of our drinking water catchments. However, this carbon store is very vulnerable, for example, to drainage and prolonged periods of drought and can contribute to climate change due to the oxidation of peat soil. The rehabilitation of degraded peatlands to a condition in which they regain their ability to deliver specific ecosystem services has considerable potential for initial mitigation gains and future carbon sequestration. Additional benefits of peatland restoration include positive socio-economic outcomes for the Midlands, increased natural capital, enriched biodiversity, and improved water quality and flood attenuation. We will:

- Restoration of Natura 2000 and Natural Heritage Area (NHA) Sites by the National Parks and Wildlife Service and other schemes such as EU LIFE projects (Wild

Atlantic Nature LIFE). The restoration/rewetting and hydrological management of our protected peatlands, will halt and reduce peat oxidation and carbon loss;

- Continue further research to assess the potential to sequester, store and reduce emissions of carbon through the management, restoration and rehabilitation of peatlands as outlined in the National Peatlands Strategy;
- Upgrade land-use and habitat mapping systems to establish the baseline condition of wetlands and inform the development of best-practice guidelines for wetland management, including the management of degraded sites and peatlands previously exploited for energy peat extraction;
- Develop further measures to help rehabilitate exploited and degraded peatlands, including as part of national land-use planning and the new Common Agricultural Policy, while recognising that strategies may need to differ between regions;
- Develop the necessary research and data to facilitate the improved certainty of reporting of this measure in the national emissions inventories.

17.3.9 Additional Measures Identified by Teagasc in the Marginal Abatement Cost Curve

The 2023 MACC for LULUCF identified additional levers over the previous MACC and CAP 23. We shall in 2024 complete a detailed mapping exercise, feasibility study and implementation plan for these measures, which by 2030 includes.

- Preventing deforestation on 495 ha of land per year;
- Delivering 2,000 ha of agroforestry;
- Through changes to forestry management practices encourage the extension of the rotation cycle on up to of 31% of forests on suitable sites, while having regard to the social, economic and environmental implications;
- Through changes to forestry management allow for the replanting of former afforested peats with birch woodland up to 18,000 ha;
- Optimal management of grassland on an extra 300,000 ha of grassland on mineral soils;
- Altered water-table management on 80,000 ha of grasslands on drained organic soils;
- Increasing the return of manure to cropland on up to 112,000 ha;
- Incorporate up to 40,000 kms of new hedgerow planting and improve hedgerow management on 75,000 kms.

17.4 Further Developments Affecting LULUCF

17.4.1 The Nature Restoration Law

The proposed EU Nature Restoration Law seeks to repair European habitats that are in poor condition and bring back nature to all ecosystems. The aim is for nature restoration measures to apply to a proportion of the EU's land and sea areas by 2030 and to eventually extend these measures to all ecosystems in need of restoration by 2050. The national implementation of the proposed EU Nature Restoration Law will be led by the Department of Housing, Local Government and Heritage on the basis of a whole-of-Government approach.

Of note for the LULUCF sector is Article 9, which stipulates targets for the rewetting of agricultural soils and includes flexibility on the meeting the targets through provision for the rewetting of industrial peatland and forestry on peat soils to count towards the overall targets.

17.4.2 The Soil Monitoring Law

A proposal for a new EU Soil Monitoring Law was published on 5 July 2023 by the Commission and aims to provide a legal framework to help achieve healthy soils by 2050 by putting in place a coherent monitoring framework for all soils (not just agricultural soils) across the EU so that Member States can take measures to regenerate degraded soils. Member States will have to define which practices should be implemented by soil managers and which should be banned because they cause soil degradation. Member States will also be required to identify potentially contaminated sites, investigate these sites and address unacceptable risks for human health and the environment. However, under the current proposal, no specific targets have been set for improving soil health.

17.4.3 Carbon Removal Certification Framework

The EU recently proposed a new regulation to develop a regulatory framework for certifying carbon removals and avoided emissions, which aims to offer incentives to farmers to upscale carbon farming within the EU. It is to be adopted by Member States on a voluntary basis and is intended to support EU targets under the revised LULUCF regulation. The framework will support carbon removal certificates for a voluntary EU-wide market and is intended to accommodate a number of existing voluntary schemes currently operating in

different Member States and provide a reliable and trustworthy market for EU removals and avoided emissions. It will not be part of any compliance markets, which generally achieve higher prices and have implications for GHG reporting in national inventories. Certificate prices will be dictated by the voluntary market. Countries hosting these activities will account for them in their national inventories and as part of the mitigation achieved towards an Nationally Determined Contribution. In cases of carbon removals and emissions avoidance activities authorised for cooperation under Article 6 of the Paris Agreement, cooperating countries will agree on accounting rules in line with rules and guidance under the UNFCCC with a view to avoid double counting of mitigation results.

17.5 2025 and 2030 KPIs

Table 17.2 – Key Metrics to Deliver Abatement in LULUCF

Theme	2025 KPI	2030 KPI	2030 abatement MtCO₂eq.
Forestry	Afforestation rates of 8,000 ha/year	Afforestation rates of 8,000 ha/year	0.126
Cropland	45k ha of cover crops planted	75k ha of cover crops planted	0.087
	60k ha of cereal area to incorporate straw directly into soil	85k ha of cereal area to incorporate straw directly into soil	0.095
Grasslands	200 kha of mineral grassland managed better to improve sequestration	450 kha of mineral grassland managed better to improve sequestration	0.260
	25 kha of grasslands on drained organic soils with reduced management intensity	80k ha of grasslands on drained organic soils with reduced management intensity	0.880

Wetlands	33,000 ha of peatlands rehabilitated as part of Bord na Móna EDRRS and LIFE People and Peatlands	35,900 ha of peatlands rehabilitated as part of Bord na Móna EDRRS and LIFE People and Peatlands	0.710
		Additional 30,000 ha exploited peat rehabilitated	0.593

17.6 Just Transition

EU Just Transition Fund – Rehabilitation of degraded peatlands and wetlands

Integrated, structured, evidence-based approach

Up to €12 million of the EU Just Transition Fund will be spent on the rehabilitation and restoration of degraded peatlands and wetlands by restoration and enhanced rehabilitation of degraded peatlands across multiple project sites, including raised and blanket bog, fens and other wetland types under the supervision of the National Parks and Wildlife Service. This scheme includes innovative research into greenhouse gas fluctuations on Irish fens.

The right skills

Delivery of this scheme will afford opportunities to workers who formerly worked in peat extraction and electricity generation to reskill and play a part in delivery of the works which will enhance their communities.

Equitable impact

Retaining the cultural and natural capital of the Midland's peatlands is an important element of achieving a just transition and this scheme will deliver improved biodiversity and conservation status of wetland habitats. Works will be required on public and private lands, including blocking of drains; construction of bunds; grazing regimes; erection of fencing for stock control; control of invasive species; management of nutrient loadings from adjacent land; and tree felling where appropriate.

Dialogue

To ensure an equitable impact on landowners, the key aspect of this scheme is stakeholder engagement, education, awareness raising and community engagement activities presenting the benefits of the restoration measures and working closely with landowners, farmers, the local community and other stakeholders.

EU Just Transition Fund - Midlands Carbon Catchment Study

Integrated, structured, evidence-based approach

Under the EU Just Transition Fund, funding of €15 million has been provided to develop a Midlands Carbon Catchment Study which seeks to research innovative ways to reduce emissions from organic soils. Carrying out research at a catchment level will facilitate testing and demonstration of management measures that prevent release of carbon from peat based agricultural soils, while gathering data on the effects of broad implementation of land drainage measures on the hydrology of neighbouring land. The research will also test the concept of a carbon farming/trading model through testing different payment models, developing suitable carbon codes and establishing a trusted Measurement, Reporting and Verification (MRV) process.

The right skills

The projects will seek to explore alternative, more sustainable land management activities, including paludiculture and the new skills required for farmers as we decarbonise.

Equitable impact

The establishment of the Midlands Carbon Catchment Study will help develop pathways to emission reductions from farmed peat soils and to research ways of engaging, empowering and rewarding farmers for sustainable management of peat soils. Through working with

farmers, new and novel ways of alternative and sustainable land management can be tested, and we can explore new opportunities and economic models such as carbon farming.

Dialogue

The project is based in dialogue with farmers and will provide several demonstration farms/living labs in the Midlands, which can demonstrate various alternative land management approaches to guide the transition to a more sustainable farming model.

17.7 Actions

Table 17.3 sets out the sector specific roadmap of actions to 2025 that will support the delivery of Ireland’s carbon budgets and sectoral emissions ceilings. Table 17.4 specifically describes the actions for delivery in 2024. Where these actions are high-impact actions new to 2024, they are also included in the 2024 Annex of Actions. The 2024 actions within the Annex will be reported on quarterly by the Department of the Taoiseach.

Table 17.3 – Key Actions to Deliver Abatement in LULUCF for the period 2024-2025

Measure	2024 Actions	2025 Actions
Increase Afforestation Planting Rate	Implement the new Forestry Programme 2023-2027, which introduced new afforestation measures and increased financial supports	Continue to support capital investments in afforestation
Forest Management	Minimise deforestation and maintain forest area of 11.6%	Minimise deforestation and maintain forest area of 11.6%
	Implement the new Forestry Programme 2023-2027, which introduced new supports to promote SFM	Continue to support SFM interventions

Measure	2024 Actions	2025 Actions
	Implement Coillte's Strategic Vision, which aims to capture additional carbon dioxide in its forests, soils and wood products by 2050	Continue to manage the Coillte estate to increase carbon storage
	Through the development of an implementation plan, assess the socio-economic impacts and feasibility of the proposed forest management measures detailed in the Teagasc MACC to determine which actions are possible to deliver sustainably	
Improved Management of Grasslands on Mineral Soils for Carbon Sequestration	Fund the establishment of multispecies and clover swards to reduce nitrogen use and increase sequestration	Encourage farmers to establish multispecies and clover swards to reduce nitrogen use and increase sequestration
	Encourage farmers take soil samples and to apply lime where necessary to correct soil pH	Encourage farmers take soil samples and to apply lime where necessary to correct soil pH
	Implement mandatory requirements under the nitrates derogation to enhance carbon sequestration	Continue to impose mandatory requirements under the nitrates derogation to enhance carbon sequestration
	Implement carbon sequestration measures in the CSP	Continue to implement carbon sequestration measures in the CSP

Measure	2024 Actions	2025 Actions
	<p>Complete a detailed mapping exercise, feasibility study and implementation plan for Teagasc MACC measures to include optimal management of grassland on an extra 300,000 ha of grassland on mineral soils, and manure to cropland on up to 112,000 ha</p>	
<p>Increase Use of Cover Crops in Tillage to increase Soil Organic Carbon Levels</p>	<p>Continue to include a cover crop measure in the CSP</p>	<p>Continue to include a cover crop measure in the CSP</p>
	<p>Continue to support capital investments in the tillage sector in the CSP</p>	<p>Continue to support capital investments in the tillage sector in the CSP</p>
<p>Increase the Incorporation of Straw in Cereal Area to Increase Soil Organic Carbon Levels</p>	<p>Continue to fund the Straw Incorporation Measure</p>	<p>Continue to fund the Straw Incorporation Measure</p>
	<p>Continue to support capital investments in the tillage sector in the CSP</p>	<p>Continue to support capital investments in the tillage sector in the CSP</p>
<p>Reduced Management Intensity of Grasslands on Drained Organic Soils</p>	<p>Continue to include reduced management intensity measures in the CSP</p>	<p>Continue to include reduced management intensity measures in the CSP</p>
	<p>Continue to fund and manage the RePEAT Mapping project</p>	<p>Continue to fund and manage the RePEAT Mapping project</p>
	<p>Launch a call for a Midlands Carbon Catchment Study to reduce emissions from grasslands on drained organic soils</p>	<p>Continue to fund and manage the Midlands Carbon Catchment Study to reduce emissions from grasslands on drained organic soils</p>

Measure	2024 Actions	2025 Actions
	Complete a detailed mapping exercise, feasibility study and implementation plan for Teagasc MACC measures to include altered water-table management on 80,000 ha of grasslands on drained organic soils	
Plant New Hedgerows	Fund the planting of new hedgerows under the CSP	Continue to fund the planting of new hedgerows under the CSP
	Complete a detailed mapping exercise, feasibility study and implementation plan for Teagasc MACC measures to include Incorporation of up to 40,000 kms of new hedgerow planting and improved hedgerow management on 75,000 kms	
Rehabilitate Peatlands as part of Bord na Móna EDRRS and LIFE People and Peatlands	Continue to restore and rehabilitate former peatland production lands	Continue to restore and rehabilitate former peatland production lands
Rehabilitate Additional Peatlands	Seek opportunities for the public and private funding of peatland rehabilitation	Seek opportunities for the public and private funding of peatland rehabilitation

Table 17.4 – 2024 Actions

Action Number	Action
LU/24/1	Implement the new Forest Strategy and Implementation Plan, including the Forestry Programme 2023- 2027
LU/24/2	Promote the use of harvested wood products and address barriers to using timber in construction i.e., supporting actions outlined in the new Industry and Interdepartmental Timber in Construction Steering Group established in 2023
LU/24/3	Seek opportunities for public and private funding of peatland rehabilitation
LU/24/4	Develop a detailed implementation plan for new and existing MACC 2023 measures
LU/24/5	Development of carbon farming activities through the creation of a carbon farming framework
LU/24/6	Implement the ACRES scheme and the CSP
LU/24/7	Implement the Straw Incorporation Measure
LU/24/8	Fund the establishment of multispecies and clover swards to reduce nitrogen use and increase sequestration
LU/24/9	Encourage farmers take soil samples and to apply lime where necessary to correct soil pH for soil sequestration
LU/24/10	Launch a call for a Midlands Carbon Catchment Study to reduce emissions from grasslands on drained organic soils

Action Number	Action
LU/24/11	Implement mandatory requirements under the nitrates derogation to enhance carbon sequestration
LU/24/12	Aim to improve peatland mapping by continuing to fund the RePEAT Project
LU/24/13	Continued state-led restoration of Irelands national raised bog and blanket bog SAC and NHA network. These works are also funded by European programmes such as LIFE, INTTEREG and others.

18. The Marine Environment

Key Messages

State of Play

- Significant progress is being made in the transformation of Ireland's regulatory and planning regime for the maritime area. The move towards a plan-led system is supporting our ambitions to decarbonise the energy sector and enable the sustainable development of offshore renewable energy (ORE)
- The establishment of the Maritime Area Regulatory Authority in 2023 marks the transition to a new maritime development management and will be a key enabler in respect of Ireland's ambitions for the ORE sector
- The conservation, protection and recovery of marine biodiversity is being progressed to meet international and EU conservation targets, through the impending enactment of national Marine Protected Areas (MPA) legislation and subsequently implementation of MPAs in the Irish maritime area. Significant effort has been made to help ensure that this does not conflict with progress to deliver ORE and simultaneously meet climate change objectives
- Transitioning Ireland's seafood sector to carbon neutrality has already commenced. Important developments supporting this transition are emerging at EU level as part of the review of the Common Fisheries Policy and the associated package of measures to improve the sustainability and resilience of the EU fisheries and aquaculture sector

Current and Future Action

- We will support a State-led development management regime by adopting a statutory Marine Planning Policy Statement (MPPS), developing marine planning guidelines, and mapping all Irish offshore waters through the INFOMAR Programme
- We will design and initiate the national process for achieving 30% MPA coverage by 2030 and adopt a statutory Ocean Environment Policy Statement to support decision-making and identify priorities for the designation of MPAs, including blue carbon. We will also designate further marine Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). This includes the recently identified candidate North-West Irish Sea SPA which covers 2,334 kms² of important marine waters

- We will continue to support transitional measures in the seafood sector and share our experiences and challenges with colleagues in Europe to help shape the policy that will apply for both fisheries and aquaculture into the future

Expected Outcomes

- A comprehensive regulatory and planning regime for the maritime area supporting our ambitions for decarbonising our energy sector through the development of offshore renewable energy
- The enactment of standalone legislation to enable the identification, designation, and management of MPAs in accordance with our national ambitions and international commitments
- Increased understanding of the impacts of climate change on our marine and coastal environment to inform action and decision-making for mitigation, resilience and adaptation

18.1 State of Play

18.1.1 National Marine Planning Framework and Maritime Area Planning Act 2021

The National Marine Planning Framework (NMPF) is Ireland's Marine Spatial Plan. It brings together all marine-based human activities, outlining the government's vision, objectives and marine planning policies for each marine activity.

The NMPF, established in 2021, was prepared with an ecosystem-based approach and informed by best available knowledge. It details how these marine activities will interact with each other in an area that is under increasing spatial pressure, ensuring the sustainable use of our marine resources to 2040.

The NMPF creates the overarching framework for decision-making that is consistent with the evidence-base to secure a sustainable future for the maritime area. The Maritime Area Planning (MAP) Act 2021 requires the Minister to carry out a review of the existing NMPF within 6 years of first publication.

The MAP Act 2021 provides the legal underpinning to an entirely new marine planning system. It allows for the first time, the regulation of Ireland's maritime area outside 12

nautical miles. This significant piece of legislation will be a key enabler of decarbonisation of Ireland's energy sources and the development of offshore energy.

The comprehensive and coherent marine planning regime in the MAP Act provides clarity to developers on the offshore wind development management system for projects in our maritime area. Removing barriers in the permitting process, while providing a consistent and supportive planning framework, is essential to achieving our green transition quickly and sustainably.

The commencement of substantive parts of the MAP Act occurred during 2022 and 2023. Any outstanding sections are expected to be commenced in 2024.

Part 2 of the MAP Act legislates for maritime spatial plans including Designated Maritime Area Plans (DMAPs). DMAPs are forward-looking sub-national or sectoral maritime plans that will contribute to the overall vision for maritime spatial planning in the Irish maritime area. DMAPs will support sustainable development of the maritime area and facilitate coherent and transparent decision-making. Building on the approach established under the NMPF, this will provide for more detailed plan-led development of the maritime area including plan-led development of offshore renewable energy.

In compliance with EU environmental assessment obligations and the Aarhus Convention on public participation requirements, the statutory DMAP procedure provided for in the MAP Act includes comprehensive public participation and statutory environmental assessment.

18.1.2 Offshore Renewable Energy Potential

Ireland's large maritime area spans 490,000 square kilometres, or 4.9 million hectares – approximately seven times the size of our landmass. It offers significant potential to develop offshore renewable energy (ORE) from wind, wave and tidal sources. Ambitious targets have been set for the delivery of ORE in Irish waters by 2030 which are elaborated on in chapter 12.

The Offshore Wind Phase Two policy approved by Government in March 2023 provides that all future offshore wind development in the Irish maritime area from now on, including but not limited to Phase Two, will take place according to a plan-led regime. What this means in practice is that the State will determine the appropriate location of all future offshore windfarms and grid infrastructure. Accordingly, all future offshore wind developments beyond Phase One will from now on only take place within individual ORE DMAPs. These will be established according to legislative provisions within the MAP Act.

This approach to accelerating designation of specific parts of our maritime area for ORE production was approved by both Houses of the Oireachtas in May 2023 and is consistent with the approach to offshore wind development currently deployed throughout the EU.

This approach will ensure that the establishment of offshore wind projects takes place in a managed, plan-led, strategic and sustainable way. It will further ensure that development takes place with full consideration for the protection of the marine environment and biodiversity, noting that there is no greater risk to biodiversity than climate change. Using multiple opportunities for comprehensive public and stakeholder engagement, this approach will enable the achievement of Ireland's energy objectives in a manner that fully provides for equitable societal and economic impacts, and consideration of the interests of local coastal and marine communities, including those engaged in fishing and seafood production. It is for this purpose that Government is accelerating the establishment of a first South Coast ORE DMAP.

In July 2023, the Minister for Housing, Local Government and Heritage designated the Minister for Environment, Climate and Communications as a Competent Authority for the purposes of preparing future DMAPs in respect of ORE. Following this designation, the Minister for Environment, Climate and Communications submitted a DMAP proposal for ORE in the South Coast of Ireland. This was approved by the Minister for Housing, Local Government and Heritage and published in July 2023.

Details on specific ORE targets and actions are set out in chapter 12 of this plan. Importantly delivery on these targets is dependent on the effective and timely implementation of all elements of the new marine planning system and environmental initiatives that are being progressed at the same time.

A Seafood ORE Working Group was established in May 2022 to facilitate discussion on matters arising from the interaction of the seafood sector and offshore renewable energy industries, so as to promote and share best practice and to encourage liaison with other sectors in the marine environment.

In April 2023, the Seafood ORE Working Group produced a Summary Guide¹⁴¹ to provide guidance on engagement and co-existence for ORE projects and seafood stakeholders throughout the lifecycle of an ORE Project.

¹⁴¹ <https://assets.gov.ie/263199/aa87ef6b-7419-4620-9146-41c8d0d31283.pdf>

18.1.3 Maritime Area Regulatory Authority

The Maritime Area Regulatory Authority (MARA) was established July 2023. This authority has responsibility for assessing applications for Maritime Area Consents (MACs). A MAC provides a right to occupy the maritime area subject to planning permission. It is a pre-requisite for applying for planning permission.

Ireland's ambitions for the offshore renewable energy sector are contingent on delivering a fit for purpose regulatory regime that will provide certainty to project promoters and provide a pathway to realising the necessary investment. This is pivotal in achieving our climate ambitions and is the overarching framework from which the MARA will operate.

The MARA will also be responsible for granting licences for certain activities in the maritime area and will have a role in compliance and enforcement, investigations, and prosecutions as well as the administration of the existing foreshore consent portfolio.

Licensing for marine aquaculture activities will continue to be handled by the Department of Agriculture, Food and the Marine (DAFM) under the Foreshore Acts, as amended. Such licensing will have to comply with the over-arching objectives of the NMPF.

18.1.4 An Bord Pleanála – Marine Planning Directorate

A new Marine and Climate Directorate has been established within An Bord Pleanála to provide strategic oversight to the new marine functions and increasing level of climate related infrastructure.

As set out above, one of the main features of the MAP Act is the creation of a new State consent, the MAC, as a first step in the new planning process. To assist in the achievement of our 2030 targets, a pathway was provided to enable a select number of projects which had advanced under the existing foreshore regime to transition to the new MAP regime once established.

The MAP Act 2021 provided the legal authority for the Minister for the Environment, Climate and Communications (prior to the establishment of MARA) to assess MAC applications from a set of pre-qualified offshore renewable energy projects. Six MACs were granted by the Minister in December 2022. Projects that were granted a MAC under the regime are entitled to enter the planning process with An Bord Pleanála. The six projects have commenced pre-planning consultation with An Bord Pleanála. This marks an important step towards reaching our 2030 climate targets.

18.1.5 Marine Biodiversity

Achievement of Ireland's objectives under the EU Marine Strategy Framework Directive (MSFD) and Natura Directives will help ensure nature-based solutions are included in Ireland's climate mitigation, resilience, and adaptation actions. This includes building on Ireland's network of existing protected sites and measures. The Government is developing comprehensive legislation to enable the identification, designation, and management of MPAs aiming to realise 30% MPA coverage of our maritime area by 2030.

The National Parks and Wildlife Service will designate further marine Special Areas of SACs and SPAs to meet national and EU obligations concerning certain habitats and species. This includes the recently identified candidate [North-West Irish Sea SPA](#) which covers 2,334 km² of important marine waters for a range of bird species, and increases the percentage of Ireland's marine waters which are protected under the EU Birds and Habitats Directives to over 9%. Offshore renewable energy targets and the conservation, protection and recovery of marine biodiversity will be considered in tandem in order to ensure both the biodiversity and climate crises are robustly addressed.

The proposed EU Nature Restoration Law seeks to contribute to the recovery of biodiversity across Member States' land and sea areas by restoring ecosystems and supporting the achievement of climate mitigation and objectives. Pending the outcome of the ongoing EU legislative process, ambitious restoration targets are proposed to be set for marine habitats, including natural carbon rich marine habitats such as seagrasses and benthic sediment for 2030, 2040 and 2050. The implementation of these targets will be complex given the scale of the maritime area and the range of potential impacts.

The seafood sector supports 15,000 livelihoods, mostly in coastal communities, and is estimated to be worth €1.3 billion to the Irish economy. The industry, through catch fisheries, aquaculture and processing, contributes significantly to food security in Ireland. The *Carbon Footprint*¹⁴² report by an Bord Iascaigh Mhara estimates that the Irish seafood sector is responsible for less than 2% of Ireland's greenhouse gas emissions. While Irish seafood is a relatively low-carbon sector, it is one of the sectors that will be most impacted by a changing ocean climate. Warming waters are likely to impact fish species at particular life cycle stages and may influence fish distribution and abundance in Irish waters. Acidification of the ocean due to increased oceanic uptake of carbon dioxide will provide a challenging environment for shellfish and other marine organisms. Plankton changes in Irish waters will impact on the presence and persistence of harmful algae and the periodic blooms of these species that

¹⁴² bim.ie/wp-content/uploads/2023/02/BIM-Carbon-footprint-report-of-the-Irish-Seafood-Sector-1.pdf

occur. Sea level rise and increased extreme weather events will impact on coastal infrastructure such as fishing harbours and the communities that rely on them.

Increasing climate literacy and education in the seafood sector is necessary to promote and raise awareness in mitigating and reducing the impacts of climate change on coastal and island communities. Investigation and validation of technical solutions to reducing carbon emissions, and reducing dependence on fossil fuels, are also necessary. It is critical that Ireland continues to monitor essential ocean variables through ocean observation programmes, enhance capacity to produce climate projections for the ocean and generate evidence and knowledge to inform adaptation strategies in the seafood sector. Implementing actions identified in the sectoral adaptation plan for the seafood sector remains a priority.

18.1.6 Increasing our Knowledge of Interactions in the Marine Environment

The NMPF has been designed to enable and support co-existence and co-location of activities in the marine area. An increased focus on understanding the interactions between activities in the marine environment and their potential effects is needed e.g., the co-location of wind farms with certain types of fishing activity. Delivery of targeted research to inform policy development in areas such as this will better inform the development of plans to ensure the sustainable use of our waters, while also delivering benefits for those, particularly in coastal and island communities, who interact with our seas and oceans.

18.1.7 Blue Carbon

Blue Carbon refers to carbon which is stored, or sequestered, in the ocean, its sediments, and vegetated habitats. Irish blue carbon systems include coastal systems, such as saltmarshes, seagrass and macroalgae, coastal and offshore sediments, and potentially cold-water corals. Two research projects, co-funded by the Marine Institute and the Environmental Protection Agency, were launched in 2022 to improve knowledge of the potential sequestration capacity of these systems:

- BlueC – Investigating Ireland’s Blue Carbon Potential through a Scientific, Socio-economic and Legislative Approach;
- Quest – Quantification, characterisation, source, and fate of past and present carbon storage in coastal and offshore sediments for effective marine management.

The general scheme of the MPA Bill, approved by Government in December 2022, proposes to provide for the consideration of ecosystems services, including carbon sequestration, in the identification and designation of MPAs. The 2023 [Ecological Sensitivity Analysis of the](#)

[western Irish Sea](#), aimed at informing future designation of MPAs, reflects this through the identification of habitats for protection due to their carbon capture and storage capability. These habitats included mudflats and sandflats, seagrass beds, and salt-marsh habitats considered of high value for biodiversity, and offshore muddy sediments. The MPA process will continue to consider and prioritise carbon sequestration in the development of Ireland's MPA network in consultation with relevant stakeholders.

18.2 Measures to Deliver

The marine environment is a key area in which multiple stakeholders need to operate, and cooperate, in order to utilise our seas and oceans in a sustainable manner.

The challenge, therefore, is to provide for pathways to maximise our use of this shared resource while maintaining and enhancing its inherent value and characteristics.

18.2.1 Support the new State-led Development Management Regime for the Maritime Area and the Development of Offshore Renewable Energy

The MPPS will sit at the top of the hierarchy of marine planning policy, setting out the Government's principles and priorities in relation to maritime planning.

This first statutory MPPS will have a lifecycle of at least 3 years and will:

- Outline the existing components of Ireland's marine planning system and the hierarchy of marine policies;
- Set out the strategic principles of marine planning policy that the Government expects marine planning bodies to observe;
- Outline Ireland's key marine planning priorities for the management of activities in the maritime space during the lifetime of this MPPS;
- Set out the relationship between the MPPS and the NMPF and their respective review cycles.

Authorities will be required to have particular regard to the MPPS and NMPF in assessing renewable energy projects and supporting infrastructure applications.

The MPPS will also strengthen and support the work of the Offshore Wind Delivery Taskforce.

18.2.2 Identify, Designate and Manage Marine Protected Areas

The Government is committed to developing an ecologically coherent network of MPAs. This aligns with the EU Marine Strategy Framework Directive's obligation to develop spatial protection measures as part of national programmes of measures and, with international obligations under the 2022 UN CBD Kunming-Montréal Global Biodiversity Framework and the EU Biodiversity Strategy for 2030, to increase the coverage of MPAs to 30% by 2030.

It is intended that, once enacted, the MPA Bill will enable the identification, designation, and management of MPAs in accordance with our national ambitions and international commitments.

The designation of MPAs, and the development of their management plans, will incorporate the best available scientific evidence. The 2023 ecological sensitivity analysis of the western Irish Sea preceded the statutory process. It identified areas of comparatively higher and lower ecological sensitivity based on the best available scientific evidence while concurrently providing information which could inform planning decisions to be taken about the potential siting of ORE infrastructure. This process will be replicated to align with the proposed South Coast ORE DMAP. This is a high priority measure to ensure that protection of the marine environment goes hand in hand with the development of ORE.

The approach to developing a network of MPAs in Ireland's marine area will be grounded in a participatory, ecosystem-based approach to expand the focus of marine protection to include ecosystem services such as those provided by "blue carbon" habitats and by climate-resilient features. It will also mandate the establishment of management plans for individual MPA sites.

The draft legislation includes provisions for an Ocean Environment Policy Statement to be developed and revised on a 6-year basis. This will set priorities for the protection of Ireland's marine environment and for the designation of MPAs.

We will:

- Initiate the national process for achieving 30% MPA coverage by 2030 in consultation with relevant stakeholders through enactment of the MPA Bill;
- Adopt of a statutory Ocean Environment Policy Statement to support decision making and identify priorities for the designation of MPAs;
- Undertake Ecological Sensitivity Analysis of the South Coast to screen for suitable areas for protection and to inform the decision-making process for the siting of ORE infrastructure.

18.2.3 Marine Climate Change Monitoring and Assessment

Climate change will continue to shift the baselines for marine plant and animal life, impacting the functioning of marine ecosystems and potentially their resilience to pressures. Ireland's ability to cultivate resilient ecosystems and mitigate and adapt to climate change will be informed by an understanding of these impacts. Government invests significantly in marine scientific research and the improvement of knowledge on our marine environment, its biodiversity and its interactions with human activities and associated pressures, along with monitoring programmes established under the EU Birds and Habitats Directives and the MSFD e.g., species monitoring, habitat monitoring, and the ObSERVE Programme. We will continue to identify knowledge gaps and research needs, engage in prioritisation processes, and invest further in research actions to address the ongoing challenges presented by climate change and its effects.

The recent *Irish Ocean Climate and Ecosystem Status Report*, produced by the Marine Institute in 2023, summarises the current trends in Ireland's ocean climate while outlining future recommendations, including research and coordinated observation.

In addition to this report, the identification of potential marine climate indicators to monitor and assess the effects of climate change on the marine environment (CAP23 Action MA/23/7) is a complementary step in the process of developing a coherent national marine climate change monitoring and assessment programme which identifies the impact of physio-chemical changes generated by climate change and ocean acidification on biological species and ecosystems.

In 2024 Ireland aims to deliver an initial assessment of the impacts of climate change on Ireland's marine environment to the European Commission under the MSFD.

The development of this assessment will also support the integrated delivery of regional commitments under the Convention for the Protection of the Environment of the North-East Atlantic (OSPAR) and will further inform the measures which Ireland will need to take to address the effects of climate change in our seas and ocean. We will:

- Develop a pilot assessment of the impacts of climate change on Ireland's Marine Environment for reporting under the MSFD.

18.2.4 Marine Adaptation and Marine Mitigation

Our coastal communities and maritime sectors will continue to play a significant role in contributing to our climate goals and will continue to be consulted and supported in being part of the transition. The seafood industry (fishing and aquaculture) is one of the key stakeholders operating in the marine area and plays a vital role in the sustainability of our coastal communities. Over 15,000 people are employed around our coast both directly and indirectly. The seafood industry continues to support initiatives to improve our understanding of our marine area and ensure sustainable resource use, including through bio and circular economy initiatives.

The European Commission's Communication on the energy transition of the fisheries and aquaculture sector as part of its Fisheries Policy Package proposes the establishment of an Energy Transition Partnership (ETP) to develop a roadmap for the energy transition of the sector towards climate neutrality by 2050. The roadmap will set out investment needs, sector initiatives and inform policy decisions to help achieve this transition. The ETP is a multi-stakeholder platform intended to promote co-operation, knowledge sharing and dialogue between private and public stakeholders in order to accelerate the energy transition in the fisheries and aquaculture sector. This partnership will help to shape the development of future transitional actions for Ireland's seafood sector, and DAFM and Agencies will play their parts in developing recommended actions that represent the needs of the Irish seafood sector.

The new National Marine Research and Innovation Strategy, Ocean Knowledge 2030, will be developed to provide a future framework within which funding for marine research can be targeted most effectively to areas of strategic importance:

- The Marine Institute will continue to progress investment in research to address climate change issues such as rising sea level, ocean acidification, fish distribution and abundance changes;
- To increase the resilience of our coastal infrastructure to the impacts of climate change, we will develop climate adaptation tools to guide future policy making and protection strategies for our coastal communities and seafood infrastructure;
- We will also examine the ways in which we can reduce fossil fuel dependency across the fishery harbours centres e.g., by increasing shore power and providing electric vehicle charging points in the harbours;

- We will develop ocean climate outreach material in order to engage with our coastal communities to increase understanding and inform behaviours towards our marine environment and its resources. Knowledge transfer conferences will be held with the seafood industry on the outputs of the Blue Carbon Footprint Report.

18.3 Actions

The actions in Table 18.1 below will be undertaken in support of Government policy on climate change. Where these actions are high-impact actions new to 2024, they are also included in the 2024 Annex of Actions. The 2024 actions that are within the Annex will be reported on quarterly by the Department of the Taoiseach.

Table 18.1 – 2024 Actions

Action Number	Action
MA/24/1	Progress the marine climate research and climate adaptation tools as set out in the Implementation Plan to the report on 'Priority steps towards building climate change resilience for the Seafood Sector'
MA/24/2	Publish the South Coast Offshore Renewable Energy DMAP
MA/24/3	Progress the mapping of all Irish offshore waters through the INFOMAR Programme, by the Geological Survey Ireland and the Marine Institute, to support all marine activities, including climate effect monitoring and site selection for offshore energy
MA/24/4	Commence determining applications for Maritime MACs for ORE Phase 2 and related development
MA/24/5	Design and initiate the national process for achieving 30% MPA coverage by 2030
MA/24/6	Adopt a statutory Ocean Environment Policy Statement
MA/24/7	Undertake Ecological Sensitivity Analysis of the South Coast

MA/24/8	Pilot assessment of the impacts of climate change on Ireland's Marine Environment
MA/24/9	Investigate the potential of renewable energies in Fishery Harbour Centres
MA/24/10	Examine the feasibility of providing weather stations within the Fishery Harbour Centres to provide real time information to harbour management and users and to record extreme weather events
MA/24/11	Complete a pilot study on improving the carbon efficiency of fishing gear design
MA/24/12	As part of the Clean Oceans Initiative work with the industry to recycle fishing gears
MA/24/13	Complete a report on alternative fuels and their environmental protection potential
MA/24/14	Complete a pilot study on decarbonisation of salmon feed barges
MA/24/15	Commence implementation of the new National Marine Research and Innovation Strategy – Ocean Knowledge 2030
MA/24/16	Ocean literacy – roll-out new modules and new engagement materials
MA/24/17	Continue to develop Harmful Algal Blooms monitoring and alert systems through dedicated applied research and demonstration
MA/24/18	Produce climate adaptation evidence and tools
MA/24/19	Develop the Seafood Sector Adaptation Plan 2025
MA/24/20	Improve assessments of climate impacts in Ireland's coastal and marine waters

MA/24/21	Development of data and digital evidence services for monitoring of marine climate impacts
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19. Local Government

Key Messages

State of Play

- Local government has a key role to play in implementing measures to meet Ireland's national climate targets and in supporting and mobilising climate action at the regional and local levels. This role will increase with the development of Local Authority Climate Action Plans

Current and Future Action

To achieve this, the local government sector and Government, will:

- Develop and implement Local Authority Climate Action Plans
- Identify and activate Decarbonising Zones in each local authority area
- Continue to support Climate Action Teams in each local authority and monitor the evolving capacity and resources dedicated to climate action within the sector
- The Climate Action Regional Offices (CAROs) to continue to engage with local authorities, with a specific focus on supporting the Local Authority Climate Action Plan delivery
- Support Cork and Dublin in the EU Mission for Climate-neutral and Smart Cities, and Galway under the EU Pilot Cities programme
- Roll out climate training and capacity building for local authority staff and elected members to ensure greater climate awareness and expertise
- Ensure fit for purpose climate governance structures for more effective and strategic coordination at national, regional and local levels

Expected Outcomes

- Greater local government involvement in and capacity for the delivery and ownership of climate actions at the regional and local level.

19.1 State of Play

19.1.1 The Reach and Role of Local Government

Local government in Ireland comprises 31 local authorities and three regional assemblies (see graphic below). Local authorities have a key role to play in implementing the measures needed to meet Ireland's national climate targets.¹⁴³ This role will increase with the development and implementation of Local Authority Climate Action Plans in each local authority area.

Figure 19.1 Local Government Structures



There are three regional assemblies - the Northern and Western, the Eastern and Midland, and the Southern Regional Assemblies. The Assemblies provide the strategic link between

¹⁴³ This chapter does not provide detail on the sectoral measures which have local authority involvement. For example, local authorities play a key role in areas such as social housing retrofit and public realm initiatives (Built Environment chapter), spatial planning and Development Plans (Carbon Pricing and Cross-Cutting Policies chapter), facilitating the development of more district heating networks (Built Environment chapter) and expanding renewable energy generation to meet targets for on-shore wind and solar as identified by Regional Assemblies (Electricity chapter), onshore renewables (Electricity chapter) and climate adaptation (Adaptation chapter), transport and roads (Transport chapter), citizen engagement (Citizen Engagement chapter). For full information on local government's role in these areas the reader is invited to consult the relevant chapters.

the EU, national and local levels, and coordinate spatial, environmental and economic planning through the statutory Regional Spatial and Economic Strategies. They administer European funding and provide a coordination function with a democratic mandate provided through elected members from local authorities.

Local authorities are multi-purpose bodies which are responsible for delivering a broad range of services which impact on climate. This includes economic and community development; environment; recreation and amenity; roads and active travel; social housing; spatial planning; and waste management. As well as playing a critical role in climate mitigation, the sector is at the front line of climate adaptation and emergency planning (see Adaptation Chapter for more on adaptation measures).

In 2021, local authorities invested almost €9.5bn in the services they provide to the public.¹⁴⁴ They provide around 135,000 social homes, construct, manage and maintain almost 100,000 km of regional and local roads, and employ close to 30,000 people.

Local authorities and regional assemblies are independent corporate entities. The Department of Housing, Local Government and Heritage oversees the operation of the local government system in broad terms, providing the general policy and statutory framework within which local authorities and regional assemblies work and deliver services. The Irish Constitution recognises the role of local government in providing a forum for the democratic representation of communities and in exercising and performing powers conferred by law.

Local government collaborated with the Department of the Environment, Climate and Communications (DECC) to agree a *Climate Action Charter (2019)* which acknowledges that local government is ideally placed to provide robust leadership in advancing the climate objective at the local and regional level. The *Delivering Effective Climate Action 2030 Strategy (2020)* sets out a roadmap to deliver on climate commitments by the local government sector. It sets out objectives for local authorities to maximise their collective impact on Ireland's national climate targets.

A number of Irish local authorities are signatories to the Global Covenant of Mayors for Climate and Energy, an initiative supported by the European Commission bringing together thousands of local governments that want to secure a better future for their citizens.

¹⁴⁴ Department of Housing, Local Government and Heritage, Local Government Finance Unit. Figures includes capital expenditure and current (revenue) expenditure for 2021.

19.1.2 Climate Action and Local Carbon Development (Amendment) Act 2021

The policy making and implementation role of local government in support of national and international climate action has been expanded through climate legislation. There is a greater emphasis on local authorities and regional assemblies as leaders in creating more sustainable, cleaner, biodiversity rich administrative areas.

The Climate Action and Local Carbon Development (Amendment) Act 2021 provides for an additional Section 14B (1) of the Climate Action and Low Carbon Development Act 2015 in relation to the role of local authorities. This sets out that each local authority shall prepare and make a plan (referred to as a Local Authority Climate Action Plan – LA CAP) specifying the mitigation and adaptation measures to be adopted for a period of five years. The plans are due to be adopted in early 2024, having gone out to public consultation and following adoption by the elected members in each local authority.

The Climate (Amendment) Act amends the Planning and Development Act 2000 by stating that local authority Development Plans must take account of the Local Authority Climate Action Plans. As stated in the Planning Act, local authority Development Plans shall include objectives for the promotion of sustainable settlement and transport strategies including the promotion of measures to reduce emissions and address climate adaptation, taking account of any Local Authority Climate Action Plan, in particular in relation to the location, layout and design of new development. The City and County Development Plans are the key statutory documents in delivering policy change at local authority level.

In addition, the Maritime Area Planning Act 2021 inserted section XXI and amended section XV of the Planning & Development Act. Under the Maritime Area Planning Act 2021, coastal local authorities have certain responsibilities in an area up to three nautical miles beyond the high-water mark. As a result, they could have a more active role in coastal management in the coming years which is relevant given increased flooding, erosion, sea level rise, wetland loss, inappropriate development etc.

19.1.3 Taking a Place-Based Approach

Local government impacts on the day-to-day life of citizens by performing vital services that support local communities and economic development. Local authorities prioritise different needs and implement different climate actions based on prevailing climate change risks, demographics and the characteristics of the area: for example, whether coastal or inland, a large city region or a small rural jurisdiction.

The public sees their local authority as a key player in delivering solutions to address the climate and biodiversity challenge. In the Climate Conversations survey, 69% of respondents identified local authorities as having an extremely important role in delivering on climate action, fourth highest after the Irish Government, the EU and business and industry.¹⁴⁵

Local connectedness and place attachment can be powerful motivating factors in climate decisions. The regional and local scale is a key site for participation to influence policy and gain public acceptance for policy proposals and local government is best placed to harness this.¹⁴⁶ Local authorities being best placed to respond to climate change is their proximity to citizens and that they can take more of a place-based response. Local authorities can build momentum as the most direct connection that citizens and local communities have with government.

Local authorities are the main method for engagement with community groups and organisations. They are conduits for information and consultation and assist them to deliver local projects and initiatives. In each local authority area there are Local Community Development Committees which operate as independent committees of the local authority and they bring together elected members and officials, state agencies and those working in local and community development and economic, cultural and environmental organisations. They work closely with communities and were established to develop and implement a coherent and integrated approach to local and community development through a Local Economic and Community Plan (LECP), which has a climate focus. Each LCDC is required to proof their plan from a sustainability and climate action perspective.

Box 19.1. Integrating Climate and Community

Sligo County Council – Local Economic and Community Plan

Sligo County Council's Local Economic and Community Plan, *Sligo 2030 One Voice One Vision*, was launched in June 2023. It is a strong example of a Local Authority and a Local Community Development Committee (LCDC) working together and taking a collaborative, integrated approach to climate action and smart modelling alongside other key economic and community priorities.

¹⁴⁵ Government of Ireland (December 2022), Climate Conversations 2022: Summary Report.

¹⁴⁶ See research from, e.g. Tubridy et al., 2021, Lowndes et al., 2006, Burton et al., 2006, Rosenzweig et al., 2010; Carter et al., 2015.

The plan seeks to position Sligo as a progressive county that is aiming to be smart, sustainable, and transformational, embracing change and creating innovative solutions. The vision is for a smart, sustainable, and socially inclusive Sligo – one that cherishes its vibrant communities, protects and celebrates its unique environment and rich culture, and is a champion of innovative growth.

This vision has been developed in a collaborative manner and has been informed and refined through consultation with key stakeholders and the wider community. This is a shared vision which brings together urban and rural communities and generates a shared sense of ownership, driving Sligo forward to realise its potential as it moves towards 2030.

Nine transformational ideas were developed and inserted into the plan, including growing green businesses and next generation business eco-systems, livable neighbourhoods, and local champions of change. These ideas stem from viewing delivery through the smart model lens which frames the pillars of smart living, smart people, smart Government, smart mobility, and the sustainable economy and environment pillars.

19.1.4 Local Authority Leadership

Set against the backdrop of an evolving and more rigorous framework of national climate policy, local government maintains a strong commitment to pursuing a leadership role on climate action. As set out in the local government strategy on climate action, *Delivering Effective Climate Action 2030*, there is an overarching commitment to leadership to ensure a coherent approach to climate action across the administrative and political structures of all 31 local authorities.

This commitment acknowledges how well positioned local authorities are in their close relationships with their communities. It builds upon their extensive knowledge of the natural and built environments within their functional areas. It acknowledges their already established engagement in climate action measures with examples such as emergency response to severe weather events, flood alleviation measures, infrastructural provision, supporting the transition to sustainable transport, protecting the natural environment, energy efficiency and reduction and housing retrofits.

The way in which local authorities can respond to climate needs is shaped by the extent to which they have direct responsibility for a specific sector or measure. Direct responsibility for reducing carbon emissions relates to local authorities managing their own carbon

footprint by reducing energy use in local authority buildings, infrastructure, vehicles, street lighting and water pumping etc. Local authorities are directly responsible for typically less than 2% of total emissions in each local authority area.

Local authorities have indirect responsibility for emissions partly through their regulatory role as planning authorities. A core function of local authorities is to develop a County or City Development Plan which plays a critical role in climate action. A Development Plan sets out land-use zoning and informs planning decisions. It provides the policy framework within which planning authority decisions on individual development proposals can be made and plays a key role in climate action through its capacity to promote sustainable land use and transport patterns for new development in urban and rural areas.

Development Plans are required to be consistent with higher tier national and regional planning strategies, including the National Planning Framework and the Regional Spatial and Economic Strategies. Development Plans will take account of Local Authority Climate Action Plans and other strategies such the Regional Renewable Energy Strategies to be prepared by the regional assemblies. This will enable spatial planning to be used as a key enabling instrument for emission reductions and prevention.

National and regional climate objectives are given effect in County/City Development Plans through specific policies and objectives that also reflect the local context. Section 10(2)(n) of the Planning and Development Act, 2000 (as amended) identifies climate action (adaptation and mitigation) as a mandatory objective to be included in all Development Plans. Adopted by the elected members of the Local Authority, the Development Plans are subject to a review and evaluation by the Office of the Planning Regulator to ensure consistency with national policy and guidance. See Cross-Cutting Policies Chapter for more.

Local authorities provide over 1,000 services and many of these impact indirectly on greenhouse gas emissions. It can include supporting nature-based climate solutions through local strategies for blue - green infrastructure and ecosystem services, functions such as managing the public realm, building active travel infrastructure (see Transport Chapter), litter and street cleaning management.¹⁴⁷ This also includes a range of adaptation services at the local level - see Adaptation Chapter).

Much of what local government influences and shapes is through co-ordinating, facilitating and advocating. Local and regional government can champion and show leadership for a particular initiative. Local authorities are effective in co-ordinating between different players, facilitating projects and identifying funding opportunities. A local authority has multiple

¹⁴⁷ This list of services provided by local authorities which impact indirectly on climate is not exhaustive and these are provided as examples only. For all the services which local authorities are responsible for delivering see Local Government Services [site here](#).

communication channels which it uses to share information and influence people. Even where the role of a local authority is to deliver a particular service this often encompasses a strong element of local advocacy and engagement to facilitate and champion behavioural change. For example, in the area of active travel the role of local authorities is to deliver infrastructure but local advocacy and engagement with communities to encourage its use and to change travel habits is a key component of the work.

19.2 Measures to Deliver

Critical functions for local government in the coming years to advance the climate agenda include specific sectoral areas of delivery which are addressed in the relevant sectoral chapters of this Climate Action Plan, as previously outlined. The measures identified below relate to specific climate delivery programmes and structures (Local Authority Climate Action Plans, Decarbonising Zones, Climate Action Regional Offices, Climate Action Teams), the EU Climate-neutral and Smart Cities Mission, and capacity building measures in the local government sector.

19.2.1 Local Authority Climate Action Plans 2024 – 2029

The requirement to prepare LA CAPs has given local authorities an expanded mandate in reducing local greenhouse gas emissions. The plans represent a new opportunity to further embed climate mitigation and adaptation in local authority Development Plans and will enhance local authorities' ability to lead, coordinate and become agents of change in response to the ongoing climate change crisis.

Planning legislation requires local authorities to forge a strong link between spatial planning and positive climate action, ensuring that land-use planning and development integrate mitigation and adaptation considerations. LA CAPs will promote evidence-based and integrated climate action and will provide strategic direction at local and community levels on the delivery of the national climate objective.

Each local authority is responsible for reducing greenhouse gas emissions from across its own assets and infrastructure, while also taking on a broader role of working with others to reduce emissions within the local authority area. Local authorities can take their own approach to the style and structure of the LA CAP but it must be aligned with the key principles set out in the statutory guidelines; ambitious, action-focused, evidence-based, participative and transparent.¹⁴⁸

¹⁴⁸ The Local Authority Climate Action Plan Guidelines can be [accessed here](#).

The LA CAPs will provide a strong emphasis on a place-based approach to climate action, promoting a better public understanding of climate-related risks at the local level and addressing context-specific conditions. Each LA CAP will set out the local framework for climate actions, stating a vision and mission and strategic goals, and setting out the local authority's objectives and actions.

Commitment to delivering the LA CAP will be demonstrated through a structured process of implementation with ongoing monitoring and progress reporting. Local authorities will devise an approach for the annual implementation of actions, track progress through KPIs, and report on progress at local and national levels. A monitoring and reporting system for the LA CAPs will be developed and best practice examples of LA CAPs will be identified and disseminated across the sector through peer-to-peer engagement.

19.2.3 Decarbonising Zones

Each local authority is required to identify a Decarbonising Zone (DZ) in their jurisdiction within their LA CAP. DZs are a mechanism to harness a portfolio of actions, projects and technologies to deliver national and regional climate objective at local level. Their aim is to give local authorities the mandate to take risks, innovate and develop demonstrator projects which, where successful, can be replicated and scaled up nationally.

A DZ is a spatial area identified by the local authority in which a range of climate mitigation, adaptation and biodiversity measures will be identified to address local greenhouse gas emissions. The range of projects proposed will be specific to each DZ and can address a variety of sectors. The economic and social benefits of decarbonising, including just transition, will be considered as will the wider co-benefits including good air quality, improved health and more biodiversity. Each DZ will include a vision statement, objectives and outcomes and will result in a portfolio of projects, known as a DZ "register of opportunities".

To advance DZs local authorities will augment their scope and use all levers available to build partnerships across sectoral boundaries. As local authorities can be limited in what they can achieve through their direct role, much of their focus will be on developing their influencing and advocacy role to create a shared ambition and build consensus.

A DZ action group will be formed to explore the strategic challenges and opportunities that the implementation of the DZs presents. It will consider the issues that arise from the process and consider bottlenecks in the system, whether regulatory, capacity, resourcing or other. The action group will comprise cross-departmental and agency representation and regional and local stakeholders.

19.2.2 Climate Action Teams and Programmes

Delivering on national climate obligations and remaining within the statutory carbon budgets will require strengthened activity by local authorities. In recognition of this, Government has invested significantly in funding climate-related programmes and roles in each local authority to increase their capacity to respond. These new specialist resources form the nucleus of the local authority climate action teams.

As climate change is a cross-cutting challenge, it requires involvement from across the entire range of local authority functions and cross-departmental working. Local authority staff from across functional areas will support climate action policy development and will be responsible for the delivery of climate actions. Organisational support and governance are integral to the success of the actions put forward in the LA CAPs. Each local authority will take a multi-disciplinary approach to climate action by having in place a defined governance structure. Government is resourcing specific roles in local authorities to support climate delivery on the ground:¹⁴⁹

- DECC is supporting the LA CAP process and broader climate delivery by funding Climate Action Coordinators and Officers in each local authority;
- Strand 1 of the Community Climate Action Programme from DECC provides funding for Community Climate Action Officers in each local authority;
- The Department of Housing, Local Government and Heritage is supporting capacity building in local authorities by funding two dedicated staff in each non-city local authority to lead implementation of the Government's Town Centre First, with a focus on tackling vacancy, promoting compact growth and urban regeneration, in line with the principles of sustainable development;
- The Heritage Council leads the Biodiversity Officer Programme;
- The SEAI provides funding supports through the Sustainable Energy Communities (SECs);
- The Department of Transport provides funding to local authorities for an Active Travel Programme via the National Transport Authority.

Local authorities play a vital role in ensuring the roll-out of public electric vehicles charging infrastructure to meet growing demand for destination and residential charging and are working closely with Zero Emission Vehicles Ireland (ZEVI) to support this in a coordinated and accelerated manner.

¹⁴⁹ This list gives examples of some funding streams and programmes by Departments and agencies to local authorities and is not intended to be exhaustive.

19.2.4 Climate Action Regional Offices

The Climate Action Regional Offices (CAROs) are a core component of climate delivery within the local government sector. In 2018, Government and the County and City Management Association (CCMA) established four CAROs in recognition of the need to build capacity within the local government sector to respond to climate change. They were initially set up to focus on adaptation, but their role has since expanded. The four CAROs and lead local authorities are:

- Atlantic Seaboard North - Mayo County Council
- Atlantic Seaboard South - Cork County Council
- Dublin Metropolitan Region - Dublin City Council
- Eastern and Midlands - Kildare County Council

The CAROs play an important role in ensuring that cross-sectoral climate issues impacting on the sector are identified and addressed in a coordinated manner. They provide a shared service function and are guided by the CCMA to ensure a consistent, sector-wide approach.

The CAROs coordinate between DECC, other departments and agencies, and the local level, including local authorities and energy agencies. They have led and been involved in a number of climate projects by providing technical expertise, acting as a conduit of information from the top down and bottom up and taking on an enabling role. They also work on ensuring community engagement and doing community outreach and awareness raising.

A key role for the CAROs in 2024 will be to provide a support function to the local authorities on the LA CAPs. They will facilitate coordination and engagement between local authorities to share information and will conduct a review of all LA CAPs to identify common themes and actions. They will bring local authorities within their region together for shared projects and shared learning, will liaise with relevant stakeholders, and provide a coordination function with DECC. A review of the CAROs will take place in late 2024 to examine the current configuration.

To assist local authorities with delivering actions identified in their LA CAPs and DZs, information sessions and learning material will be provided on national and European funding sources by the Climate Action Regional Offices and through the Local Authority Climate Action Training Programme.

19.2.7 EU Climate-neutral and Smart Cities Mission

The cities of Cork and Dublin were selected to be part of the Climate-Neutral and Smart Cities Mission initiative which is supporting 112 cities across the EU and beyond to become climate neutral by 2030. The mission and associated opportunities through EU funding programmes will help the designated cities to accelerate their journeys to net zero carbon. This will develop solutions to arrive at systemic decarbonisation while also becoming places which provide citizens with quality-of-life benefits such as a healthier urban environment, less congestion and noise, and greener economic activity.

The cities are working with the NetZeroCities platform to develop local, city-wide commitments coupled with actions and investment plans to deliver on these as part of their Climate City Contracts. These urban local authorities will act as experimentation hubs, testing and implementing creative solutions which will impact multiple emission areas such as energy, transport and buildings. In addition, Galway was successful in the initial round of the Mission Pilot Cities programme and is receiving funding to demonstrate methods for rapid retrofitting and decarbonisation of the existing housing stock.

DECC is supporting the cities and working alongside departments and agencies to identify constraints and propose solutions. A governance mechanism will ensure a structured discussion and delivery forum, with a view to expanding learning to all Irish cities.

Local government will be supported to continue to use its initiative to engage directly with European support programmes and learn from their European peers on decarbonising practices being delivered in both urban and rural municipalities across Europe. This will be supported through seminars on European funding opportunities and sharing learning from the EU Climate-neutral and Smart Cities Mission.

19.2.6 Local Authority Climate Capacity Building and Engagement

Government has been supporting capacity building in the local government sector. DECC funds the Local Authority Climate Action Training Programme which is delivered by the Eastern and Midlands CARO through the Local Authority Services National Training Group. Building climate action capacity in the local authorities is essential to support their leadership role in the fight against climate change and to build resilience.

The programme comprises a suite of training pillars designed for specific target groups covering areas such as climate science, the translation of national policy to local requirements, leadership and local innovation. Strategic training priorities are identified and learning objectives developed to suit the target learning groups which include local authority

front line staff, senior management, climate action teams, and elected members. The programme commenced in January 2021 and by October 2023 circa 23,000 training places had been provided to approximately 20,600 people. This equates to around 71% of local authority staff and 35% of elected members having received training.

A training needs analysis for the programme will be carried out in early 2024 to determine its future direction, training target numbers, and specific target groups to help strengthen the implementation of climate action.

In addition, the Department of Transport is funding capacity building in local authorities through the Smart and Sustainable Mobility Accelerator Project which is being delivered by the Regional Assemblies. Phase 2 of the programme will be rolled out by Q4 2024.

Box 19.2 Strengthening Capacity within Local Authorities

Smart and Sustainable Mobility Accelerator Project

The Smart and Sustainable Mobility Accelerator project is a comprehensive training and capacity-building programme led by the Southern Regional Assembly, the Eastern and Midland Regional Assembly, and the Northern and Western Regional Assembly, and funded by the Department of Transport.

Aligning with the national Sustainable Mobility Policy, the programme is designed to support local authorities and stakeholders in each of the three regions to accelerate the implementation of smart and sustainable mobility projects. It will focus on knowledge and skills enhancement, strengthening cross-sectoral collaboration, and promoting behavioural change.

The programme will be delivered in four phases up to December 2025 in a series of project focused workshops. It will provide insights into state-of-the-art technical systems, expert mentoring, models, shared resources and give access to best practices occurring across Europe and nationally to drive progress in smart and sustainable mobility.

An online platform was launched as part of the Accelerator Project and will continue to be developed as a collaborative space for local authorities in 2024.

There will be a programme of engagement in 2024 for communications across Irish society through which government can engage, enable and empower everyone to take climate action. This will include providing support for local climate action, sharing insights from social

and behavioural research, and developing and sharing engagement toolkits. It will be carried out through established networks and will include local government - see Citizen Engagement Chapter for more.

19.3 Supporting Local Government Delivery

19.3.1 Co-ordinating Structures and Resourcing

There are a number of strategic governance arrangements bringing together national, regional and local levels of climate governance. For example, the CAROs provide a coordination function between central government, the local government sector and each individual local authority. Similarly, the sector has come together to decide on policy and strategy at a sectoral level via the CCMA and regularly engages with funding departments at this centralised level. The regional assemblies provide the statutory regional spatial and economic policy framework for the development of each region. They ensure a strategic link between EU, national and local levels and help to coordinate the work of local authorities, working closely with local authorities, elected members, government agencies and departments to support delivery of national and regional policy objectives at local level.

While coordination structures between the tiers of government have strengthened, there is a need for improved climate governance arrangements for more effective and strategic coordination. Developing more effective governance structures between EU, national, regional, and local climate action policy and programmes will be critical in helping Ireland to meet its climate ambitions in the coming years. It will also be critical for the elected members in local authorities and regional assemblies to play a leading role in advocating for climate action sub-nationally.

Ireland's local authority system has limited direct functions in many sectoral areas related to climate, with decision making responsibility frequently resting with government departments and central agencies. This is in contrast to other developed EU Member States.¹⁵⁰ Irish Government expenditure is one of the most centralised in Europe, with 77% of expenditure undertaken by Central Government.¹⁵¹ This can limit a local authority in being able to respond directly and orientates much of its actions towards taking on a partner and champion role. Decision making at a Local Authority level frequently relies on authorisation and funding from central government which places a greater onus on having in place effective coordinating structures.

¹⁵⁰ Callan, M. (2020), *Administration*, vol. 68, no. 4 (2020), pp. 201–214, "Reforming local government: Past, present and future".

¹⁵¹ IPA (2022), *Public Sector Trends*, [IPA Public Sector Trends 2022.pdf](#)

As the nature of local government’s role in climate action evolves there will be a need to ensure appropriate resourcing so that the sector is well positioned to deliver all that is required to achieve national climate targets. Enablers need to be put in place to support the sector in achieving this. Continued partnership and engagement between government departments and the local authority sector is critical.

Research will be commissioned to explore in more detail opportunities for improved governance structures and how to ensure accelerated delivery at the local and regional levels, taking into account the complex funding and operating structures

19.4 Actions

The actions in Table 19.1 below will be undertaken in support of Government policy on climate change. Where these actions are high-impact actions new to 2024, they are also included in the 2024 Annex of Actions. The 2024 actions that are within the Annex will be reported on quarterly by the Department of the Taoiseach.

Table 19.1 – 2024 Actions

Action Number	Action
LG/24/1	Adopt the Local Authority Climate Action Plans
LG/24/2	Develop Decarbonising Zones
LG/24/3	Develop a monitoring and reporting system for the Local Authority Climate Action Plans
LG/24/4	Review and update the Climate Action Charter
LG/24/5	Roll out Phase 2 of the Smart and Sustainable Mobility Accelerator Programme
LG/24/6	Support Cork and Dublin in the EU Climate-neutral and Smart Cities Mission

20. The Circular Economy and Other Emissions

Key Messages

State of Play

- Our current linear economic model, based around 'Take-Make-Waste', is environmentally and economically unsustainable. Increasing extraction of natural resources and the generation of waste is a major contributor to habitat and biodiversity loss and contributes to global warming
- Moving to a circular economy offers a sustainable alternative to the current model and Ireland is fully committed to making this transition. The transition to a circular economy will reduce our greenhouse gas (GHG) emissions and make a significant contribution to achieving our climate objectives
- The 'Other' sector comprises F-gases, waste, and petroleum refinement, and accounted for 2.8% of Ireland's GHG Emissions in 2022
- Emissions in this grouping have reduced by 10% since 2018, and there is a 25% reduction target by 2025 and a 50% reduction target by 2030

Current and Future Actions

- Continue to implement the Waste Action Plan for a Circular Economy 2020 and publish a second Whole of Government Circular Economy Strategy
- Prioritise prevention planning in plastics, packaging, food, textiles, and construction waste
- Encourage circular economy behaviours such as reuse and recycling through targeted communication campaigns and a new deposit and return scheme for plastic bottles and aluminium cans
- Reduce emissions from F-gases and from petroleum refinement

Expected Outcomes

- Savings in GHG emissions through reducing consumption and maximising the efficiency of our materials use

20.1 State of Play – the Circular Economy

Shifting to a circular economy from a climate perspective is particularly important for both the extraction and disposal phases of resources. For example, 50% of the world's total greenhouse gas (GHG) emissions come from resource extraction and processing, while if

global food waste were a country, it would be the third largest global GHG emitter exceeded only by China and the United States. Reducing the resource intensity of our economy is, therefore, an essential component of achieving net zero emissions. Avoiding waste in the first instance is a positive daily climate action we can all do.

The EU monitoring framework indicator for the circular economy is called the 'circular material use rate' or circularity rate. This measures the share of overall material resources used in the EU which come from recycled materials, thereby saving primary raw materials from being extracted. With a circularity rate¹⁵² of 1.8%, Ireland lags well behind the EU average of 12.8%. Improving this rate will yield savings not only in tonnes of materials wasted, but also in carbon emitted.

Transforming our approach to consumption and production in line with modern, circular economy principles entails avoiding waste, minimising new resource use, and designing for long-life and eventual repurposing of materials.

Ireland is making progress but has yet to realise major opportunities in relation to our circular economy potential. Government has adopted a suite of strategic measures to provide a pathway for reduced resource consumption, waste prevention, and increased levels of re-use and recycling.

In 2023, the following specific actions were delivered:

- The second Circular Economy Innovation Grant Scheme awarded a total of €640,000 to 13 projects across Ireland;
- The Environmental Protection Agency (EPA) advanced to publication end-of-waste and by-product national decisions for specific construction and demolition waste streams;
- A new regulatory system for end-of-waste and by-product decision applications was developed;
- Actions under the National Food Waste Prevention Roadmap 2023 – 2025 to halve our food waste by 2030 commenced;
- New regulations to make mandatory the provision of an organic waste bin to all households were developed;
- Incentivised pricing for commercial waste to support increased segregation was introduced;

¹⁵² Circularity rate indicates the share of material which is recovered and fed back into an economy

- A new National Waste Management Plan was advanced to publication by the local government sector;
- Levies to drive waste prevention, reuse and recycling were expanded to include a new charge on waste recovered at landfills, used for energy generation, or exported, with monies raised being ringfenced for environmental projects in the Circular Economy Fund.

20.2 Measures to Deliver a Circular Economy

The system level transition from a linear to a circular economy requires clear national strategic policy making, underpinned by statute, suitably resourced for implementation, and informed by listening to our stakeholders. The building blocks for Ireland's transition include:

- The Waste Action Plan for a Circular Economy 2020-2025 (WAPCE) which commits to fully embracing the opportunities towards becoming a circular economy in the decade ahead;
- The Whole-of-Government Circular Economy Strategy 2022 – 2023 which builds on the approach set out in the WAPCE and codifies Ireland's strategic goal to be a circular economy leader among EU Member States by 2030. The second version of the strategy will be developed in 2024, setting out key targets and metrics for the circular transition;
- The enactment of the Circular Economy and Miscellaneous Provisions Act in 2022 which defined the circular economy in Irish law for the first time and has provided the legal basis for many of the new actions delivered or in development. One of these actions, a levy on disposable coffee cups, was due for delivery in quarter 2023 (CE/23/8/A) and has been delayed pending agreement with the Revenue Commissioners on a collection model for the levy;
- The EPA's Circular Economy Programme 2021 – 2027 which incorporates and builds upon the previous National Waste Prevention Programme to support national-level, strategic programmes to prevent waste and drive the Circular Economy in Ireland;
- In line with obligations under the Waste Management Act 1996, the local government sector has prepared the first National Waste Management Plan for a Circular Economy 2023 – 2029, which replaces previous regionally based plans. This plan sets out a framework for the prevention and management of waste across Ireland for the period 2023 to 2029.

20.3 Other (F-gases, Waste and Petroleum Refinement)

In the design of the sectoral emission ceilings, a number of emitting activities in our economy did not fit into traditional sectors. The 'other emissions' category was created to account for emissions related to F-gases, waste, and petroleum refinement.

F-gases (or fluorinated gases) are predominately used in refrigeration and air-conditioning systems, fire protection, high voltage switch gear, and semiconductor production; as well as in foams, aerosols, and metered dose inhalers.

Sources of waste emissions include solid waste disposal, composting, waste incineration (excluding waste to energy), open burning of waste, and wastewater treatment and discharge. Landfills are the largest source of these emissions.

Petroleum refining emissions arise from the conversion process for turning crude oil into other products such as kerosene, light gas oil, heavy fuel oil, liquid petroleum gas, and propane.

20.3.1 State of Play

These emissions sources accounted for around 2.8% of Ireland's greenhouse gases in 2022. Waste is the largest of the three emissions sources in the sector, with the breakdown for 2022 as follows:

Waste: 0.87 MtCO₂eq.

Petroleum Refining: 0.3 MtCO₂eq.

F-gases: 0.74 MtCO₂eq.

Table 20.1 – Other GHG Emissions in 2022

Emissions MtCO₂eq	Share of Total GHG Emissions	Industry Emissions per tCO₂eq per capita
1.9	2.8%	0.38

Between the years of 2005 and 2012, a steady decline has resulted in an overall emissions reduction from these activities of 34%, or 1 MtCO₂eq. However, in the last decade we have

seen a slight increase in emissions from these activities. The EPA provisional data shows an increase of around 3% between 2021 and 2022 (1.87 MtCO₂eq. to 1.92 MtCO₂eq.).

However, despite this small year-on-year increase in emissions between 2021 and 2022, emissions from the sector have decreased by around 10% on 2018 levels, driven mainly by reductions in waste and F-gas emissions as EU regulations are implemented.

Table 20.2 – Trends in Other GHG Emissions

Timeframe	Percentage Change	Absolute Change MtCO ₂ eq.
2005-12	-34%	-1
2012-21	0.8%	0.016

Table 20.3 – Required Level of Decarbonisation for ‘Other Emissions’ for Carbon Budgets 1 and 2

Sectoral Carbon Budget 2021 to 2025 (MtCO ₂ eq.)	Cumulative Emissions to 2022	Remaining Sectoral Carbon Budget 2023 to 2025 (MtCO ₂ eq.)	Sectoral Carbon Budget 2026 to 2030 (MtCO ₂ eq.)
9	3.8	5.2	8

The first carbon budget allocated 9 MtCO₂eq. to the ‘other emissions’ for the first budget period (2021-2025). 3.8 MtCO₂eq. have been emitted in the two years of the carbon budget, leaving a balance of 5.2 MtCO₂eq. remaining three years to 2025. The sector also has a reduction target of 25% based on 2018 emissions by 2025. Emissions in this sector have already decreased 10% from the baseline of 2.2 MtCO₂eq. The additional 11%, or 0.4 MtCO₂eq., must be realised in the coming three years.

Table 20.4 – Required Level of Decarbonisation for ‘Other Emissions’

2018 Emissions MtCO₂eq.	Indicative Target for 2025 Emissions MtCO₂eq.	Indicative Target % Reduction for 2025	2022 Emissions MtCO₂eq.	% Increase (+) / Reduction (-) to date
2.2	1.5	25%	1.9	-14%

20.3.1 F-gases

Emissions from F-gases were stable between 2021 and 2022. However, this follows sustained decreases since 2016. F-gas emissions in 2021 are 40% below their 2016 peak. These decreases are mainly due to changes in the refrigeration and air-conditioning sector where high global warming potential (GWP) hydrofluorocarbons (HFCs) are being phased out in favour of low-GWP alternatives. This phase-out is taking place at EU level and is the main measure introduced by Regulation (EU) No. 517/2014 to tackle F-gas emissions. This regulation is currently under review, and it is expected that the level of ambition for HFC phasedown will increase substantially from 2024 onwards. A temporary increase in F-gas demand may be experienced as we ramp up our ambition for the installation of heat pumps across the economy to decarbonise domestic and industrial heating. Any such increase will be within the measures introduced in the EU Regulation and will reduce as new technology is brought to the market, resulting in an almost complete phaseout of F-gases in new refrigeration, air-conditioning and heat pump equipment. This will facilitate Ireland, and the EU, in meeting our climate commitments in the coming years.

20.3.2 Waste

The GHG emissions from waste come from waste treatment and are reported under the waste sector. These are predominantly methane emissions as a result of disposal to landfill. The gains in reducing material use, and substituting virgin material with recycled material, will be credited back up the supply chain. Minimising waste generation, and improving segregation, reuse and recycling will lead to less emissions associated with waste transport and treatment.

Waste emissions per head are lower in Ireland compared to the EU average, and emissions have fallen since 2005. Ireland has made significant progress in managing waste streams, particularly in improving recycling rates and diversion from landfill.

The key policy tools which have been successful in Ireland are:

- Levy on landfill and diversion regulations;
- Widespread segregation of waste, capturing recyclables and biodegradable waste;
- Industry-supported recycling operations;
- Regional waste planning.

To achieve our targets, all these areas need improvement, particularly developing better prevention strategies; improving capture rates; and reducing both contamination and the amount of non-recyclable materials.

The Circular Economy and Miscellaneous Provisions Act 2022 provides a legal basis for many of these additional measures and will be complemented by other actions such as the introduction of a Deposit Return Scheme (DRS) for plastic bottles and aluminium cans and the expansion of Extended Producer Responsibility schemes to additional material and product categories.

Waste policy measures outlined in the *Waste Action Plan for a Circular Economy* will have a significant effect on waste minimisation, reuse, and recycling rates over the next four years. The latest release of data on biodegradable municipal waste (BMW) to landfill, reports that Ireland met the 2010, 2013 and 2020 targets under the Landfill Directive (1999/31/EC). Ireland's success in diverting waste from landfill is underpinned by two key levers: increases in the levy for disposal of waste to landfill; and requirements to divert BMW from disposal to landfill under the Landfill Directive targets.

A number of waste-related measures in the *Waste Action Plan for a Circular Economy* are being given regulatory effect in 2023, including:

- From 1 July 2023, the introduction of a mandatory segregation and incentivised charging regime for commercial waste, similar to that which already existed for the household market, in order to ensure waste minimisation and proper segregation in the sector;
- Regulations requiring every household in the State on a waste collection service to be provided with a separate bio-waste collection service by end 2023;
- From 1 September 2023, the introduction of a Waste Recovery Levy of €10 per tonne, along with a corresponding increase of €10 per tonne to be applied to the existing Landfill Levy, to encourage higher value waste management practices, including reuse and recycling.

20.3.3 Petroleum Refining

Petroleum refining processes are the chemical engineering processes and other facilities used in petroleum refineries (also referred to as oil refineries) to transform crude oil into useful products such as liquefied petroleum gas, gasoline or petrol, kerosene, jet fuel, diesel oil and fuel oils. The majority of emissions from petroleum refining processes are carbon dioxide emissions and are covered by the EU Emissions Trading System.

20.3.4 2025 and 2030 KPIs

Table 20.5 – Key Metrics to Deliver Abatement in ‘Other Emissions’

Theme	2025 KPI	2025 Abatement (vs 2018) MtCO ₂ eq.	2030 KPI	2030 Abatement (vs 2018) MtCO ₂ eq.	2031 – 2035 Measures
F-gases	Continue to monitor and implement the provision of training and certification to ensure compliance with Regulation (EU) No 517/2014 on F-gases	0.4	Reduce emissions from F-gases by 80% compared to 2014 and implement any further measures required by EU regulation	0.7	Consider measures that go beyond the EU Regulation
Waste	Separate collection obligations extended to include hazardous household waste by end of 2024, bio-waste by end of 2023,	0.2	Recycle 70% of packaging waste Recycle 55% of plastic waste Reduce food waste by 50%	0.4	Reduce the amount of municipal waste landfilled to 10% by 2035 Recycle 65% of municipal

	and textiles by end of 2024		90% collection of plastic drinks containers by 2029 Ensure all plastic packaging is reusable or recyclable by 2030		waste by 2035
Petroleum Refining	Energy and process efficiencies	0.1	Energy and process efficiencies	0.2	Energy and process efficiencies

20.3.5 Measures to Deliver Sectoral Emissions Ceilings

The following measures will be critical to success.:

20.3.6.1 Phase-down High-GWP F-gases

We will support the EU proposal to raise ambition regarding the phase-down in the use of F-gases and promote the early implementation of the measures contained in a new regulation.

20.3.6.2 Reduce Waste sent to Landfill and/or Incineration

Irish and regional waste policy is based on the waste hierarchy: waste prevention; preparing for reuse; recycling; and energy recovery; with disposal being the least desirable option. It is implemented by the Government, Local Authorities, and the EPA. We are transforming our approach to waste in line with modern, circular economy principles. Ireland has scope for major progress in all the key areas of the waste hierarchy.

Landfill Reliance

- Limit diversion of biodegradable municipal waste to landfill to maximum limit of 427,000 tonnes;
- Reduce the amount of municipal waste landfilled to 10% by 2035.

Recycling

- Recycle 65% of municipal waste by 2035;
- Recycle 65% of packaging waste by 2025 and 70% by 2030;
- Recycle 50% of plastic packaging waste by 2025 and 55% by 2030;
- Separate collection obligations extended to include hazardous household waste (by end 2024), bio-waste (by end 2023), and textiles (by end 2024).

Food

- Reduce food waste by 50% by 2030.

Plastic Single-Use Items

- For plastic bottles, achieve a 77% collection rate by 2025, and 90% by 2029;
- Achieve an ambitious and sustained quantitative reduction in consumption of these products by 2026 (compared to a 2022 baseline);
- Incorporate 25% of recycled plastic in Polyethylene Terephthalate (PET) beverage bottles from 2025, and 30% in all plastic beverage bottles from 2030;
- Ensure all plastic packaging is reusable or recyclable by 2030.

20.3.6.3 Reduce Emissions from Petroleum Refining

- Encourage the use of renewables in the petroleum refining process;
- Investigate the applicability of use of biomethane in petroleum refining process;
- Encourage measures to reduce use of petroleum-based fuel, which is discussed further in chapter 15 on transport.

Box 20.1 – Global Methane Pledge

Global Methane Pledge

Methane has a very different warming impact than carbon dioxide, due to its higher GWP. The recent analysis from the UN indicates that methane contributes 84 to 86 times more to global warming per unit of mass than carbon dioxide during the first twenty years. This means that rapidly reducing methane emissions from energy, agriculture, and waste activities can achieve significant progress toward the slowing down of the warming of our planet.

In recognition of this, at COP26 in 2021, 121 countries (including Ireland and the wider EU)

signed up to 'The Global Methane Pledge' which pledges to collectively reduce methane emissions by 30% between 2020 and 2030.

This 30% methane reduction target is a collective one which will be accomplished by reducing methane emissions across various sectors, including the production of energy, agriculture, and waste management.

Ireland will reduce the fugitive methane emissions which arise from the production and transportation of fossil fuels, especially natural gas, by increasing renewable energy and decreasing the demand for fossil fuels.

Waste can also contribute to methane emissions. We will reduce methane from waste by sending less waste to landfill by 2030, by reducing waste overall, by adopting a circular economy which ensures products are renewable and reusable, and by ensuring that waste is a last resort.

We will also reduce the methane profile within our agriculture sector by introducing with new feed technologies, with more efficient animals, and by providing diversification opportunities to farmers.

20.4 Actions

The actions in Table 20.6 below will be undertaken in support of Government policy on climate change. Where these actions are high-impact actions new to 2024, they are also included in the 2024 Annex of Actions. The 2024 actions that are within the Annex will be reported on quarterly by the Department of the Taoiseach.

Table 20.6 – Actions

Action Number	Action
CE/24/1	Develop a new levy on single-use packaging, focusing on disposable cups for cold drinks
CE/24/2	Develop a roadmap for improved circularity in textiles and improve the separate collection system

CE/24/3	Go-live of the Deposit and Return Scheme for plastic bottles and aluminium cans
CE/24/4	Develop a Circular Economy Roadmap for the Construction Sector
CE/24/5	Undertake high level assessments of Irish geology, for potential for Critical Raw Materials. This report will identify which of the European Critical Raw Materials are potentially hosted in Irish primary deposits
CE/24/6	Publish a second Whole-of-Government Circular Economy Strategy
CE/24/7	Deliver a national circular economy platform to provide an authoritative source of information about the circular economy
CE/24/8	Progress the establishment of a national centre of excellence for circular manufacturing and innovation
CE/24/9	Roll-out a new levy on disposable coffee cups
CE/24/10	Progress the development and rollout of a communications campaign for the circular economy
CE/24/11	Undertake high level assessments at known historic mine sites to evaluate potential for future detailed analysis and evaluation, including for import substitution. The report will be used to direct Ireland's response to the Critical Raw Materials Act (CRMA) regarding increasing circularity within the mining sector, reducing Europe's import reliance for critical and strategic raw materials and building resilience within the decarbonisation of the energy sector value chain, specifically raw material demand for renewable technologies. It will also guide the remediation strategies for the contaminated Silvermines and Avoca mine sites

21. International Climate Action

Key Messages

State of Play

- As highlighted in the IPCC's Sixth Assessment (AR6) Synthesis Report, 2023, global greenhouse gas emissions continue to increase. Historical and current inequalities regarding unsustainable energy use and patterns of consumption and production remind us of the urgency of addressing climate impacts. The most vulnerable people continue to be disproportionately affected
- We find ourselves at a pivotal moment internationally, with the Global Stocktake having assessed global progress towards reaching the Paris Agreement 1.5°C goal at COP28
- Ireland played an active role in operationalising the new Loss and Damage funding arrangements including a fund, which were agreed at COP28. In the design of the fund, we successfully championed the needs of countries and communities that are most vulnerable to the impacts of climate change, especially Small Island Developing States (SIDS) and Least Developed Countries (LDCs).
- 2023 saw a milestone achieved by Ireland in the delivery of the Sustainable Development Goals (SDGs), with our second Voluntary National Review (VNR), "Building Back Better while Leaving No One Behind", delivered to the UN High-Level Political Forum on Sustainable Development (HLPF), highlighting the work to date progressing the SDGs in Ireland and recommitting ourselves to their overall fulfilment

Current and Future Action

- Ireland is committed to supporting accelerated action towards fulfilling the SDGs, the Rio Conventions and the goals of the Paris Agreement
- Enhanced engagement through multilateral climate and environmental processes will be progressed, as well as supporting greater participation of young people, women and other marginalised groups
- Ireland will continue concerted and coordinated action in protecting our global oceans as well as our land, with a focus on the delivery of critical area-based protection of marine ecosystems underpinned by Regional Sea Conventions and UN-led processes such as the Convention on Biological Diversity and recently adopted UN treaty on biodiversity in areas beyond national jurisdiction (BBNJ Agreement)

- Ireland has committed to provide €225 million in climate finance to developing countries per year by 2025. Support will continue to focus on leaving no one behind, and on gender-sensitive and locally led climate action. Increased flows of climate finance for vulnerable developing countries, including via innovative sources, will continue to be championed by Ireland

Expected Outcomes

- Ireland's climate diplomacy will continue to promote the voice of those who are most vulnerable to climate change, championing a human rights-based and inclusive approach to global climate action
- Ireland will continue to scale up its international climate finance, maintaining our focus on support for climate resilience and adaptation, while also expanding to support other priorities such as responding to Loss and Damage and biodiversity protection and restoration
- Proactive participation and engagement in international fora and processes on climate issues will assist with mainstreaming climate considerations in policy development, as well as advancing sustainable use principles and appropriate climate-resilient development

21.1 Introduction

As we continue to witness the impact of climate change on our planet, the IPCC's Sixth Assessment (AR6) Synthesis Report, 2023, emphasises that accelerated action to address climate change is needed without delay, with global warming already reaching 1.1°C above pre-industrial levels. Without immediate and deep emissions reductions across all sectors, limiting global warming to 1.5°C is beyond reach. Global greenhouse gas (GHG) emissions need to peak before 2025 at the latest and be reduced by 43% by 2030, with methane needing to reduce by 34% by 2030. The report confirms that while climate impacts are an irreversible reality for every country, the most extreme impacts can still be avoided through enhanced adaptation and mitigation efforts.

Climate change impacts, both direct and indirect, continue to disproportionately harm those who have contributed the least to the problem. The scale of change necessary to avert and minimise the worst effects of climate breakdown requires an enormous increase in investment across the world, but particularly for the most climate vulnerable countries, to limit further devastation and progress climate justice. In this decade, accelerated action to

adapt to climate change is essential to close the gap between existing adaptation and what is needed.

While the sobering AR6 Report reiterates the need for urgent climate action, international climate negotiations are at a crucial stage. The 28th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP28), which took place between the 30 November and the 13 December, in Dubai, United Arab Emirates, marked the conclusion of the first Global Stocktake (GST) under the UNFCCC in which Parties assess their collective progress towards the achievement of the goals of the Paris Agreement. The GST decision agreed at COP28 marked the first time that the role that fossil fuels play in contributing to climate change was explicitly called out in a COP decision text. The historic deal calls for the world to transition away from fossil fuels in a just, orderly and equitable manner to achieve net zero by 2050. In September 2015, all 193 UN Member States, including Ireland, adopted the Sustainable Development Goals (SDGs) to ‘end poverty, protect the planet and ensure prosperity for all’ as part of the new agenda – [Transforming Our World: the 2030 Agenda for Sustainable Development](#). This framework is made up of 17 SDGs and 169 targets. Ireland had a significant role in its development and adoption, as co-facilitator, together with Kenya, of the intergovernmental negotiations in September 2015.

The 2023 SDG Summit was held in September 2023 during the United Nations General Assembly (UNGA) high-level week, marking the mid-point of the implementation of the 2030 Agenda. Heads of State and Government undertook a comprehensive review of the state of the SDGs, responding to the impact of multiple and interlocking crises facing the world, and providing high-level political guidance on transformative and accelerated actions leading up to the target year of 2030 for achieving the SDGs. Ireland was honoured to co-facilitate the negotiations on the Political Declaration for the SDG Summit this September reinvigorating the ambitious, global action needed to rescue the Goals and deliver progress for people and the planet by 2030. The Political Declaration was adopted at the opening of the SDG Summit. Ireland, together with EU Member States and likeminded countries sought to preserve the strong language in the 2030 Agenda on human rights and gender equality and proposed stronger language on climate change.

The global challenge of climate change cannot be addressed by one country alone but requires coordinated and collaborative global efforts. In order to contribute to this, Ireland remains committed to engaging strongly in multilateral fora on climate action and seeks to use its position there to advocate for ambitious climate action and to continue to support individuals and communities in Least Developed Countries (LDCs) and Small Island

Developing States (SIDS). This includes our work through the EU, the UN, International Financial Institutions (IFIs), the Organisation for Economic Co-operation and Development (OECD), and others.

21.2 Developments in International Climate Policy

21.2.1 Multilateral Climate Action

Under the UNFCCC process, COP28 took place in Dubai, the United Arab Emirates from 30 November to 13 December 2023, which included the World Climate Action Summit taking place on the 1st and 2nd December.

COP28 marked the completion of the first Global Stocktake under the Paris Agreement, which for the first time in the history of the Conference of the Parties, called for Parties to transition away from fossil fuels. It also called on Parties to adopt ambitious new targets to triple renewable energy capacity and double the rate of energy efficiency improvements by 2030. Ireland, working with its European and High Ambition Coalition colleagues, advocated for the highest possible ambition on fossil fuel phase out while at COP.

On means of implementation, the GST decision called out the role that developed countries should play in contributing to climate finance, but also recognised the importance of other sources of finance, including from innovative sources. Minister Ryan acted as the EU co-lead on Climate Finance, with his French counterpart, Minister Agnes Pannier-Runacher.

Following on from the landmark decision at COP27 to establish new funding arrangements including a fund to assist developing countries to respond to the Loss and Damage associated with the adverse effects of climate change, COP28 saw agreement on these funding arrangements including a new fund. Ireland was a strong advocate for progressing this work and played an active role in discussions on Loss and Damage throughout 2023, including by Department of Foreign Affairs sharing a seat with Germany on the Transitional Committee established to operationalise the new funding arrangements. On the Transitional Committee, Ireland championed a focus on countries and communities that are particularly vulnerable to the adverse effects of climate change, especially Small Island Developing States (SIDS) and Least Developed Countries (LDCs). An Taoiseach, Leo Varadkar, announced Ireland's pledge of €25 million to the new fund in Ireland's National Statement at the World Climate Action Summit, as part of COP28.

In addition to the €25 million for Loss and Damage, Ireland pledged over €50 million in climate finance at COP28. This included €12.5 million to the International Fund for Agricultural Development, €12 million to the Adaptation Fund, €5 million to the Central

Emergency Response Fund, €5 million to Feminist Funding on climate action, and €2 million to the Special Climate Change Fund.

Climate issues continue to arise in other international fora beyond the UNFCCC. In March 2023, UNGA adopted a resolution requesting the International Court of Justice (ICJ) to provide an advisory opinion on the obligations of States in respect of climate change. The resolution was initiated by the Government of Vanuatu. Ireland was one of more than 130 countries who cosponsored this resolution.

In respect of the United Nations Environment Programme (UNEP), 2023 has seen real progress towards developing an international legally binding instrument on plastic pollution at the Intergovernmental Negotiating Committee (INC) on Plastic Pollution. Solutions to address the full life cycle of plastics include reducing production and managing waste as well as increasing circularity of the materials being produced. This will have the dual benefit of decreasing pollution and resource pressures on the environment and reducing GHG emissions from both the manufacture of virgin plastics and the processing of waste plastics. Negotiations on this are expected to continue until 2024, with Ireland advocating for an ambitious approach to addressing plastic pollution.

The outcomes and decisions adopted at these international meetings reaffirm a resolve at a global level to strive towards maintaining the 1.5°C temperature goal contained in the Paris Agreement. Ireland continues to strengthen its climate diplomacy across all fora and use its position and voice to advocate for those who are most vulnerable to climate change. Ireland also recognises that climate change has many complex impacts on international peace, security, and stability, and actively engages with partners, within the UN system, the EU and in other fora on managing the risks of climate change on security and promoting synergies between climate action and peace.

21.2.2 Climate Finance

Ireland's All-of-Government [International Climate Finance Roadmap](#), published in July 2022, sets out the strategy for achieving Ireland's international climate finance targets, which involve more than doubling our funding for developing countries by 2025 – bringing to €225 million annually. The thematic priorities of the Roadmap centre on strengthening climate resilience and adaptation, and expanding Ireland's support for marine protection, Loss and Damage and innovation for climate action. The principles outlined in the Roadmap include a focus on leaving no one behind, and on gender-sensitive and locally led climate action. The Roadmap also aims to maintain a human rights-based approach and a commitment to the

transparency of our climate finance. These principles and priorities will inform Ireland's international climate diplomacy bilaterally and in the context of the UN, the EU, multilateral climate and environment funds, as well as with Multilateral Development Banks (MDBs) and other partners.

Ireland's €225 million climate finance target will ultimately be contributed to by several funding Departments, including the Departments of the Environment, Climate and Communications; Foreign Affairs; Finance; and Agriculture, Food and Marine, who will continue and increase their financing through bilateral and multilateral contributions, including international climate funds and entities such as MDBs.

While some of Ireland's support to international funds, such as the Loss and Damage Fund is via the Department of Foreign Affairs, the Minister for the Environment, Climate and Communications is responsible for scaling up Ireland's financial support to other international climate funds such as the Global Environment Facility (GEF), the Green Climate Fund and the Adaptation Fund. Following a pledge in 2022 to increase its financial support to the Global Environment Facility, Ireland is also increasing its support to the Green Climate Fund, which is the principal global fund for climate action, for its second replenishment cycle. This ambition will be matched by increases in Ireland's bilateral climate financing and enhanced engagement with MDBs on their climate programming.

In line with OECD and EU reporting guidelines, Ireland publishes its climate finance spend retrospectively. In 2022, Ireland provided at least €115m in climate finance, indicating an increase of 15% as compared to 2021. This demonstrates continued progress towards meeting the €225 million target.

More broadly, Ireland's international development policy, *A Better World* has committed to 'future proof' our international development cooperation by integrating climate action into all our work. In 2022, work got underway within the Department of Foreign Affairs to develop a 'Climate Proofing Strategy' to fulfil this commitment, encompassing an approach that aims to address climate risks and integrate climate resilience into our international development programming. The Strategy to be finalised in late 2023 will be followed by an implementation plan.

While Ireland is committed to delivering on our climate finance commitments, there is a recognition that due to the scale of the global challenge of climate change, public finance alone will not be able to deliver the necessary funding at the required speed, and additional sources of finance must be effectively harnessed. To this end, Ireland strongly supports the

EU's drive to improve attention to, and understanding of, how to make all finance flows, including private financing and investments, consistent with Paris Agreement goals.

21.2.3 Sustainable Development Goals

In July 2023 the Minister for the Environment, Climate and Communications, presented Ireland's second Voluntary National Review (VNR) on the Sustainable Development Goals at the High-level Political Forum on Sustainable Development at the United Nations.

The VNR, entitled *Building Back Better while Leaving No One Behind*, outlines the progress that Ireland is making in achieving the SDGs, and the range of national policies introduced by Government to support this national effort, particularly in the areas of education; employment and social protection; health; community engagement and inclusion; housing; climate action; and the circular economy.

Many actions to achieve the SDGs are embedded in overarching national policies for recovery from the pandemic, including the [Economic Recovery Plan](#), and the [National Recovery and Resilience Plan](#), as well as policies and frameworks such as the 2nd National Strategy on Education for Sustainable Development (ESD to 2030), the [Well-being Framework](#), Ireland's [Climate Action Plan](#), and policies on the green and digital transitions, such as the [National Retrofit Plan](#) and [Harnessing Digital – The Digital Ireland Framework](#).

Ireland has also integrated the SDGs into overseas development policy. [A Better World: Ireland's Policy for International Development \(2019\)](#) sets out our priorities, including reducing humanitarian need, supporting climate action, promoting gender equality, and strengthening governance, while reaching the furthest behind first.

21.2.4 Ocean Governance and Biodiversity

Ireland is committed to the protection and restoration of biodiversity, including marine biodiversity, recognising that taking such action can also help us adapt to climate change. As an island nation, Ireland recognises the crucial role that oceans and the sustainable blue economy play in supporting marine biodiversity, climate resilience, and sustaining livelihoods, particularly for coastal LDCs and SIDS.

Meeting the targets of Sustainable Development Goal 14 is of paramount importance to Ireland. We are committed to building on efforts and supporting partnerships to achieve a clean, healthy, and biologically diverse ocean, which is productive, used sustainably, and resilient to the effects of climate change and ocean acidification. Ireland is already striving to mitigate and eliminate marine pollution and enhance biodiversity through participation in the Oslo and Paris (OSPAR) Convention for the Protection of the Marine Environment of the North-East Atlantic, and collaboration through EU policies such as the EU Biodiversity Strategy for 2030 and its Nature Restoration Law, as well as the Marine Strategy Framework Directive, the Maritime Spatial Planning Directive, and the Birds and Habitats Directives. The OSPAR North-East Atlantic Environment Strategy 2020-2030 commits 15 signatory States and the EU to achieving a clean, healthy and biologically diverse sea through concrete actions, including over a dozen operational objectives directly addressing climate change and ocean acidification.

Ireland has also been engaging with international partners to support efforts to deliver better policies to protect biodiversity and our oceans, both regionally and globally, to eliminate the negative environmental impacts of human activities and ultimately restore coastal and marine ecosystems to good status for future generations. This work includes Ireland's participation in 2022-23 in the negotiations that agreed the Kunming-Montreal post-2020 Global Biodiversity Framework at the 15th Conference of the Parties to the UN Convention on Biological Diversity (COP15). At least 15% of Ireland's €225 million climate finance target will have biodiversity protection/restoration as an intended programme outcome.

Ireland has also been an active and vocal participant in the negotiations and delivery of the internationally binding agreement on marine biodiversity in areas beyond national jurisdiction (BBNJ Agreement) which was adopted in June 2023. In line with the work on BBNJ Agreement, Ireland has joined approximately 20 other countries in calling for a precautionary pause of deep-sea mining on the international seabed, until such time as a robust regulatory framework is in place to protect the marine environment. It is essential that the scientific knowledge base is sufficient to allow for informed decision-making. Ireland will continue to promote this position within the International Seabed Authority and other relevant fora.

21.3 Principles for Climate Action

21.3.1 Championing a Science Based Approach to Climate Action

Ireland is an active member and strong supporter of the work of the IPCC, the UN body which provides authoritative scientific information on the understanding of climate change

and the options to address climate change through adaptation and mitigation of GHG emissions.

The IPCC has a unique and crucial role in informing international responses to climate change, by providing the scientific underpinning needed for effective global policy under the UNFCCC and the 2015 Paris Agreements. Its reports were a key input to the first GST in 2023 and for subsequent GSTs which will take place every five years under the Paris Agreement.

The IPCC completed its 6th Assessment Cycle at its 58th Plenary meeting in March 2023. The 6th Assessment Cycle has been the longest, most productive, and demanding IPCC cycle to date. It provided three Special Reports and additional Good Practice Guidelines to support governments in the reporting of and accounting for GHG emissions and removals. Ireland strongly supported the provision of the Special Report on Climate Change and Land during the 6th Assessment Cycle. The election of the new IPCC Chair and Bureau at its 59th Panel in July 2023 has initiated its 7th Assessment Cycle. This Cycle will last for 5 to 7 years

Ireland is a committed advocate of the principle that decisions on the policies to address climate change must be underpinned by the best available science and the IPCC's work is vital to this. Ireland actively supported the work of the IPCC during the 6th Assessment Cycle and will continue to do so during the 7th Assessment Cycle.

21.3.2 Action for Climate Empowerment and the Climate Youth Delegate Programme

Action for Climate Empowerment (ACE) is a term adopted by UNFCCC which involves six elements – education, training, public awareness, public participation, access to information, and international cooperation, to improve the effectiveness of climate action. All Parties to the UNFCCC are encouraged to appoint a National ACE Focal Point, which Ireland did in 2021, to represent Ireland in ACE workshops and meetings, act as a liaison between the UNFCCC and relevant national policymakers, and advocate for climate action.

Under the 2023 Climate Action Plan, the Department of the Environment, Local Government and Heritage officially launched its Climate Youth Delegate Programme in early 2023. Each year, the Climate Youth Delegate Programme will appoint one young person from Ireland aged between 18 and 25 years to be part of Ireland's national and international climate change efforts for a term of 20 months. The goal of this programme is to provide a channel to support the active participation of young people in international climate policy and

processes and ensure Ireland's official delegation to the UNFCCC benefits from youth perspectives.

Each Climate Youth Delegate, serving over a term of 20 months, will be tasked with raising awareness of Ireland's international climate action efforts through sharing informative and engaging social media posts, including, where possible, interviews with high-level representatives. Additionally, the Climate Youth Delegate will conduct outreach to youth communities and networks across Ireland to share knowledge and gather ideas and solutions to feed into Ireland's national and international climate change priorities.

As part of their role, the Climate Youth Delegate will be invited to accompany the Taoiseach, Ministers and/or Departmental officials at different national and international climate change negotiations each year.

21.3.3 Human Rights, Gender, and Climate Action

Recognising that climate change disproportionately affects the most vulnerable globally and within countries, Ireland continues to champion a human rights-based approach to global climate action. This can be seen demonstrated in our [International Climate Finance Roadmap](#), which focuses on the principles of leaving no one behind and on gender-sensitive and locally led climate action, as well as more broadly in our approach to international development, as set out in [A Better World](#). Ireland is also a vocal advocate for women, girls, LGBTQ+ people, and other marginalised groups, who it recognises are disproportionately affected by climate change and more vulnerable to the shocks and stresses associated with current and future climate change.

These principles continue to guide Ireland's climate action globally, including in the provision of climate finance and in our engagement in international climate negotiations.

The connected issues of climate action and climate justice have increasingly been arising in an international human rights context. In UN fora, Ireland has supported a number of these initiatives. In October 2021, Ireland co-sponsored a resolution adopted at the 48th session of the UN Human Rights Council, which recognised for the first time the right to a clean, healthy and sustainable environment. In July 2022, at the 76th session of UNGA, Ireland similarly co-sponsored a resolution recognising this right. These resolutions signal a strong political commitment by States to scale up efforts to catalyse transformative change.

Ireland remains an advocate for the importance of gender-sensitive climate action and continues to support gender activities under the UNFCCC, including implementation of the

Gender Action Plan. Ireland also works with a range of partners and non-governmental organisations and grassroots organisations to empower communities who are at the forefront of climate change, including the Women’s Environment and Development Organisation who work to strengthen women’s participation and contribution to national and international climate discussions through training, capacity building, and the provision of travel funds. Ireland is also enhancing its tracking and reporting of international climate finance that contributes to gender equality in our Climate Finance Reports.

21.4 Actions

The actions in Table 21.1 below will be undertaken in support of Government policy on climate change. Where these actions are high-impact actions new to 2024, they are also included in the 2024 Annex of Actions. The 2024 actions that are within the Annex will be reported on quarterly by the Department of the Taoiseach.

Table 21.1 – Actions

Action Number	Action
IC/24/1	Increase Ireland’s year-on-year climate finance contribution for 2024
IC/24/2	Participate constructively at INC on plastics

22. Adaptation

Key Messages

State of Play

- Reports from the World Meteorological Organisation and Intergovernmental Panel on Climate Change have reinforced the urgent need for greater action on climate adaptation globally. All time regional record temperatures were observed in Europe during July 2023. Wildfires were evident across multiple European regions causing deaths and destruction on a significant scale
- Observations show that Ireland's climate is also changing in terms of increases in average temperature, changes in precipitation patterns, and weather extremes. These are having a significant impact on our coastlines, including sea level rise, and on land use and natural resources. June 2023 was the warmest June on record in Ireland, on land and in the sea
- The publication of the TRANSLATE project in 2023 by Met Éireann has provided a single agreed set of climate projections for Ireland for the first time. TRANSLATE confirms the predicted pattern of climate change for Ireland
- Climate change is expected to have diverse and wide-ranging impacts on Ireland's environment, society, and economic development, including on managed and natural ecosystems, water resources, agriculture and food security, human health, and coastal zones
- The scale of the adaptation response required in Ireland is directly linked to the success of reducing overall global greenhouse emissions. Failure to reduce emissions in line with global projections will lead to the need for greater adaptation actions now and long into the future
- The cumulative impact of projected climate changes has the potential to result in abrupt and/or irreversible changes in the climate system (so-called tipping points), including the possible collapse of the Atlantic Meridional Overturning Circulation. The risk of going beyond these tipping points increases with increased global warming

Current and Future Action

- Ireland's primary adaptation policy response to these challenges is set out in our first statutory five-year National Adaptation Framework (NAF), which was published in January 2018. The NAF identified 12 key sectors requiring Sectoral Adaptation Plans, which were approved by Government and published in October 2019
- The approval of a new NAF by Government will be a priority action in 2024, along with the advancement of Ireland's first National Climate Change Risk Assessment by the Environmental Protection Agency, reflecting the increasingly important role of adaptation policies in addressing the locked-in impacts of climate change. The revised NAF will underpin the subsequent development of a new cycle of Sectoral Adaptation Plans
- Under the Climate Action and Low Carbon Development (Amendment) Act 2021, every Local Authority will finalise in 2024 a comprehensive five-year Climate Action Plan covering mitigation, adaptation, and citizen engagement

Expected Outcomes

- Adaptation measures are taken in anticipation of the impacts of climate change so as to minimise the risks and future costs of climate change to society. Adaptation can reduce the risks and potential impacts of climate change, but it cannot eliminate them

22.1 What is Climate Adaptation?

Adaptation is the process of adjustment to actual or expected climate change and its effects. It is not a one-time emergency response, but a series of proactive measures that are taken over time to build the resilience of our economy and society to the impacts of climate change. This can ultimately help minimise the emergency response that is necessary when severe weather events occur. Adaptation can also ensure that slower onset impacts, such as sea-level rise, biodiversity loss or water supply issues, are accounted for ahead of time, and that measures to minimise their future impact are put in place.

Unlike climate mitigation, there is no single metric for measuring the success of adaptation to climate change. The policy targets for adaptation at global and EU levels are extremely

context-specific, but generally aim to improve the climate resilience of existing systems. Work on measuring progress on adaptation is continuing at national level.

Successful adaptation generally requires that an analysis of the future impacts of climate change is mainstreamed into decision-making and policies across a large number of sectors that are vulnerable to climate change impacts. In Ireland, work undertaken in the area of flood-risk management provides a good illustration of this principle. Flood-risk management strategies make use of assessments of potential long-term changes in flood intensity and frequency based on climate projections and an understanding of how natural systems will be impacted. This informs the building of long-term resilience into flood defences by designing them with a view to cope with, or be readily adaptable to, conditions that may arise in the future.

Adaptation measures take many forms, depending on the unique context of a country, region, community, business, or organisation. Adaptation seeks to minimise the costs of climate change impacts and maximise any opportunities that may arise. Adaptation actions range from building adaptive capacity (e.g., increasing awareness, sharing information, and targeted training) through to policy development, implementation, and financing. An analysis by the Swiss Re Institute¹⁵³ indicates that the global economy faces a potential loss of nearly 10% of its total economic value by the middle of the century if climate change continues on its current trajectory and if the goals of the Paris Agreement and achieving net-zero emissions by 2050 are not met.

Climate Conversations 2022 surveyed the Irish public specifically on adaptation measures. The responses show that extreme weather events (87%), river and coastal flooding (73%) and pressure on food production (71%) are the top three impacts that people in Ireland associate with climate change. In terms of adaptation measures, 96% of people thought restoring natural habitats was an important aspect of climate change adaptation. Ensuring that planning law supports sustainability (92%); education and training (93%); and putting climate change at the centre of all Government policy (89%); were also seen by approximately nine in ten people as important adaptation responses.

Although the importance of adaptation is increasingly recognised at global, EU and national levels, multiple reports highlight a general lack of preparedness across the globe. Reports of extreme weather events and their impacts are an almost constant presence in the media, and the increased intensity and frequency of weather events due to climate change is a growing feature in global policymaking. Extreme heatwaves across Europe saw many

¹⁵³ ¹⁵³ <https://www.swissre.com/institute/research/topics-and-risk-dialogues/climate-and-natural-catastrophe-risk/expertise-publication-economics-of-climate-change.html>

regional temperature records broken in July 2023, while deadly wildfires raged across Hawaii, Canada and on the Greek island of Rhodes. These wildfires caused death and destruction of property across large regions in the short term but will also have longer term impacts from which it will take years, if not decades, to recover. In Ireland, according to Met Éireann data, June 2023 exceeded the previous hottest June on record (1940) by more than half a degree, while July 2023 was the wettest July on record in Ireland with four times more rain than July 2022.

22.2 Global and EU Position

The *State of the Climate in Europe 2022* report was produced jointly by the World Meteorological Organisation and the European Union's Copernicus Climate Change Service and launched in Dublin in June 2023 during the European Climate Change Adaptation Conference.

It shows how Europe has been warming twice as much as the global average since the 1980s, with far-reaching impacts on the region's socio-economic fabric and ecosystems. In 2022, Europe was approximately 2.3 °C above the pre-industrial (1850-1900) average temperature used as a baseline for the Paris Agreement on climate change.

The report notes that 2022 was another year of warming in Europe. Climate indicators showed the continued effect of human induced climate change on the atmosphere, land, sea, and cryosphere. The combination of exceptionally high temperatures in summer, along with severe drought, had a significant impact on people and ecosystems, with more than 15,000 excess deaths, drying rivers, record melting glaciers and devastating wildfires.

The Intergovernmental Panel on Climate Change (IPCC) *Working Group I and II Reports*, which are part of IPCC's *Sixth Assessment Report (AR6)*, have increased our understanding of the impacts of climate change at global and regional levels.

The *Working Group I Report* states that the scale of recent changes across the climate system, and the present state of many aspects of it, are unprecedented over many centuries to many thousands of years. It further states that it is unequivocal that human influence has warmed the atmosphere, ocean, and land, and that widespread and rapid changes in the atmosphere, ocean, cryosphere, and biosphere have occurred.

The report shows that emissions of greenhouse gases (GHGs) from human activities are responsible for approximately 1.1°C of warming since 1850 to 1900, and finds that averaged over the next 20 years, global temperature is expected to reach or exceed 1.5°C of warming. It projects that global surface temperature will continue to increase until at least mid-century

under all emissions scenarios considered. Global warming of 1.5°C and 2°C will be exceeded this century unless deep reductions in carbon dioxide and other GHG emissions occur in the coming decades.

The *Working Group I Report*¹⁵⁴ makes several high-level projections for Europe as a whole, and of more specific relevance in the Irish context. Further projections are made for the Northern Europe region. The report projects that there will be:

- An observed increase in pluvial flooding attributed to human influence and a projected further increase at global warming of 1.5°C (medium confidence) and 2°C and above (high confidence);
- A projected increase in severe windstorms at global warming of 2°C and above (medium confidence).

The IPCC *Working Group II Report*¹⁵⁵, published in February 2022, assesses the impacts of climate change, looking at ecosystems, biodiversity, and human communities at global and regional levels, and is more relevant to reviewing vulnerabilities, and the capacities and limits of the natural world and human societies to adapt to climate change.

The report finds that climate change, and the related increase in the frequency and intensity of extreme weather events, has caused widespread adverse impacts and related loss and damage to both nature and people. It further finds that the impacts and risks of climate change are becoming more complex and increasingly difficult to manage. Interaction between multiple climatic and non-climatic hazards will result in compounding overall risk, and risks cascading across sectors and regions. The report highlights the urgency of immediate and far-reaching climate action, finding that near-term actions that limit global warming to close to 1.5°C would substantially reduce projected loss and damage related to climate change in human systems and ecosystems (compared to higher warming levels). However, it cannot eliminate them all.

The report states that economic damage from climate change has been detected in climate-exposed sectors, with regional effects on agriculture, forestry, fishing, energy, and tourism. It further states that key infrastructures, including sanitation, water, health, transport, communications, and energy, will be increasingly vulnerable if design standards do not account for changing climate conditions. In addition, it states that biodiversity loss and

¹⁵⁴ *Climate Change 2021: The Physical Science Basis. Working Group I Contribution to the IPCC Sixth Assessment Report*

¹⁵⁵ *Climate Change 2022: Impacts, Adaptation and Vulnerability. Working Group II Contribution to the IPCC Sixth Assessment Report*

regions and Local Authorities who have signed up to the mission charter under the EU Mission for Adaptation to Climate Change. This includes seven Local Authorities in Ireland. Louth, Mayo, Offaly, and Sligo County Councils, as well as Cork, Dublin, and Galway City Councils, have signed the mission charter and pledged to develop adaptation and mitigation strategies. This entitles them to expert advice and guidance through the Mission Implementation Platform, and to access funding for innovation and pilot projects. Areas of climate change vulnerability are being proactively identified and appropriate resilience solutions implemented.

22.3 Policy Measures for Ireland

While international and European level climate reports and projections provide us with very useful data on the likely impacts of climate change, it is extremely important that we continue to build our understanding of the impacts of climate change at both national and local levels to support adaptation decision-making. Observations show that Ireland's climate is changing in terms of coastline, sea level rise, increases in average temperature, changes in precipitation patterns, and weather extremes. Satellite observations indicate that the sea level around Ireland has risen by approximately 2 to 3 mm a year since the early 1990s. In addition, there is evidence of an increase in river flows across the country between 1972 and 2017. However, there is also evidence in recent years of an increase in the frequency and intensity of potential drought conditions, especially in the east of Ireland.

Temperatures in Ireland have increased by about 0.9°C during the period 1900 to 2019, or an average of about 0.075°C per decade. Fifteen of the top twenty warmest years on record have occurred since 1990. The overall temperature trend is upwards and consistent with global patterns of change.

Climate change is expected to have diverse and wide-ranging impacts on Ireland's environment, society, and economic development, including on managed and natural ecosystems, water resources, agriculture and food security, the built environment, human health, and coastal zones. The most immediate risks to Ireland from climate change are predominantly those associated with changes in extremes, such as floods, droughts, and storms.

Ireland's primary adaptation policy response to these challenges is set out in our first statutory five-year NAF¹⁵⁸, which was published in January 2018. As noted, the NAF

¹⁵⁸ [gov.ie](http://www.gov.ie) - National Adaptation Framework (NAF) (www.gov.ie)

identifies 12 key sectors requiring Sectoral Adaptation Plans. These plans were approved by Government and published in October 2019. The Sectoral Adaptation Plans are grouped under four themes as set out in Table 23.1.

Table 23.1 – Adaptation Sectors at National Level and Lead Department¹⁵⁹

Theme	Sector Level	Lead Department for Sectoral Adaptation Plans
Natural and Cultural Capital	Seafood	Department of Agriculture, Food and the Marine
	Agriculture	
	Forestry	
	Biodiversity	Department of Housing, Local Government and Heritage
	Built and Archaeological Heritage	
Critical Infrastructure	Transport Infrastructure	Department of Transport
	Electricity and Gas Networks	Department of the Environment, Climate and Communications
	Communications Networks	
Water Resource and Flood Risk Management	Flood Risk Management	Office of Public Works
	Water Quality	Department of Housing, Local Government and Heritage
	Water Services Infrastructure	
Public Health	Health	Department of Health

The completed sectoral plans¹⁶⁰ describe and assess the extent of the risks presented by climate change to a sector, and present contingency plans to address these risks and ensure climate resilience. They include actions to mainstream adaptation into policy and administration at sectoral level to improve the resilience of existing and planned critical infrastructure, systems and procedures, to the effects and variability of climate change, as well as to improve cooperation and coherence within and across sectors.

¹⁵⁹ As included in the 2018 National Adaptation Framework

¹⁶⁰ [gov.ie](http://www.gov.ie) - Sectoral Adaptation Planning (www.gov.ie)

Box 23.1 – Summary of Potential Impacts of Climate Change on Ireland

Summary of Potential Impacts of Climate Change on Ireland

- Precipitation extremes and flooding, resulting in disruption of transport services, damage to structures, damage to the built environment, unsafe driving conditions and deterioration of transport infrastructure
- Increased water demand because of the increased frequency of heatwaves, leading to further strain on water transmission and distribution networks, as well as on supply (abstraction and storage)
- Projected increases in the frequency of extreme precipitation events may result in more water-borne disease (e.g., E. coli) from contamination of drinking water because of overland flows of pollutants. Projected increases in annual average temperature, combined with wetter conditions, may result in enhanced environmental conditions for bacterial growth and viral survival with a potential increase in food-borne disease
- Projected increases in sea levels and storm surge will result in increased frequency of coastal flooding and change, with significant impacts for coastal structures, communities, settlements, and coastal heritage sites
- Projected increases in the intensity of windstorms may result in increased windthrow leading to damage to structures and to overhead power lines;
- Projected increases in the frequency of heatwaves will result in degradation of communications infrastructure (e.g., street cabinets), potentially leading to an increased requirement for active cooling
- Projected changes in temperature and precipitation will result in the arrival of invasive species more suited to changed climate conditions, some of which may have negative impacts on the economy (e.g., via impacts on farming and fisheries, increased insect, and microbial damage to building materials such as timber)
- Projected increases in the frequency of extreme precipitation events will result in increased levels of run-off and potential water quality issues, with implications for slurry storage and land spreading
- Projected increases in the frequency of heatwaves and drought, resulting in the increased frequency of wildfires damaging forest stands and threatening structures and settlements

Following the 2022 statutory review of the 2018 NAF, a new NAF to update Ireland's national adaptation policy to reflect significant developments at national, EU and international level is

in development. This will include a consideration of the need for additional sectors to add to the 12 existing sectors. It will also examine relevant adaptation policy areas identified in the review, including the relevance of socioeconomic and just resilience (just adaptation) considerations in adaptation policy responses; avoidance of maladaptation; cascading risks; the need for greater monitoring, reporting and evaluation of adaptation at all governance levels; and the relevance of nature-based solutions, including land use in adaptation responses.

Following a statutory consultation period, the new NAF will be submitted for approval by Government early in 2024. Adaptation measures to be included in the new NAF are currently being examined.

The new NAF and the revision of guidelines for sectors will underpin the development of a new cycle of Sectoral Adaptation Plans. The development of new and/or revised sectoral plans covering the priority sectors identified in the NAF will commence in 2024. The new iteration of Sectoral Adaptation Plans developed by sectors will take into account research, reports and climate data available since 2019, and will incorporate the findings, where appropriate, of publications including Uisce Éireann's *National Water Resources Adaptation Framework*, flood risk management plans, river basin management plans, and water resource management plans; and the *Climate Adaptation Strategy for Regional and Local Roads*.

22.3.1 Whole of Government Response

The NAF recognises the importance of a whole of Government response to climate adaptation. While “climate proofing” Ireland is a collective responsibility for both Government and civil society, Government will:

- Lead and coordinate the adaptation effort;
- Work with sectors to assist in the development of a new iteration of Sectoral Adaptation Plans;
- Work cooperatively across sectors to tackle complex challenges and to support the adaptation objectives set out in national policy, including addressing cascading risks;
- Ensure the necessary information is in place for independent adaptation actions by private actors.

22.4 Local Adaptation

The current NAF clearly identifies the critical role of Local Authorities in building climate resilience. Four Government-funded Local Authority Climate Action Regional Offices supported the preparation of Local Adaptation Strategies in all 31 Local Authorities. They are now working with Local Authorities and coordinating the development of Local Authority Climate Action Plans in 2023, which will include adaptation measures. Actions related to local authorities are covered in chapter 19.

2.5 Climate Impact Information for Ireland

22.5.1 Met Éireann

Met Éireann is leading on the implementation of the National Framework for Climate Services (NFCS), working with the Environmental Protection Agency (EPA), Geological Survey Ireland, and key Departments, which will ensure collaboration and sharing of climate services information between key stakeholders. The NFCS will be a key focus in the development of the new NAF. Met Éireann has also collaborated with University College Dublin and the Irish Centre for High-End Computing to contribute to the development of a new global climate model (EC-Earth), which can provide analysis of the impacts of global climate change in Ireland to inform policymaking. A key output of the NFCS in 2023 was the TRANSLATE project which provides the first standardised and bias-corrected national climate projections for Ireland and allows practitioners to view how Ireland's climate could change if global temperatures increase to 1.5°C, 2°C, 2.5°C, 3°C or 4°C. This is important to ensure that adaptation practitioners in Ireland can work off a common understanding of the future climate, that is peer reviewed and based on the best available science.

22.5.2 Environmental Protection Agency

The EPA is responsible for the provision of Climate Ireland, Ireland's National Adaptation Platform. Climate Ireland is Ireland's national web-based resource of up-to-date climate information and adaptation tools. It serves local, regional, and sectoral decision-makers. It plays a key role in increasing awareness and building capacity in relation to adaptation planning through the provision of guidance and tailored adaptation planning workshops and seminars. The EPA will continue to develop the Climate Ireland Adaptation Network and associated practitioner annual seminar. It will prioritise the development of Climate Ireland, which will play a significant role as a platform for data produced under the NFCS. The EPA will also be progressing the first semi-quantitative National Climate Change Risk Assessment in 2024, to identify and prioritise risks at a national level and to ensure that risk information underpinning the second iteration of Sectoral Adaptation Plans is robust and fit for purpose.

22.5.3 Global Climate Observing System

The Global Climate Observing System National Committee for Ireland (GCOS-Ireland), which includes Met Éireann, the EPA and the Marine Institute, promotes the GCOS principles for observing essential climate variables of relevance to Ireland. The GCOS-Ireland *Climate Status Report for Ireland 2020* provides high quality evidence to support the development of appropriate climate mitigation and adaptation solutions.

22.5.4 Office of Public Works

The Office of Public Works' national flood information portal, www.floodinfo.ie¹⁶¹, provides access to historical and projected flood data for Ireland (including for future scenarios taking account of the potential impacts of climate change), thereby supporting adaptation and emergency response planning, and empowering individuals and communities to respond to flood risk.

22.6 Actions

The actions in Table 22.2 below will be undertaken in support of Government policy on climate change. Where these actions are high-impact actions new to 2024, they are also

¹⁶¹ <https://www.floodinfo.ie>

included in the 2024 Annex of Actions. The 2024 actions that are within the Annex will be reported on quarterly by the Department of the Taoiseach.

Table 22.2 – 2024 Actions

Action Number	Action
AD/24/1	Develop a new National Adaptation Framework
AD/24/2	Complete a review of the national <i>Preliminary Flood Risk Assessment</i> to assess the potential impacts of climate change on flooding and flood risk across Ireland
AD/24/3	Develop options for the delivery of a National Implementation Strategy for Nature-Based Solutions for the management of rainwater and surface water runoff in urban areas
AD/24/4	Publish sectoral technical guidance
AD/24/5	Improve the resilience of Ireland’s water infrastructure through implementation of a Nature Based Solutions (NBS) Programme
AD/24/6	Undertake catchment-based quantitative groundwater assessments to highlight zones that are more likely to provide sustainable water supplies in the future
AD/24/7	Engage with and survey industry in relation to climate adaptation to collect baseline data to progress adaptation measures in this area
AD/24/8	Deliver Climate Ireland enduring National Adaptation Platform, providing a one stop shop for adaptation related resources, including hosting the Climate Ireland Adaptation Network for adaptation practitioners in Ireland
AD/24/9	Improve the resilience of Ireland’s water infrastructure by progressing implementation and delivery of the four regional plans under UÉ’s National Water Resources Framework Plan
AD/24/10	Implement climate indicators in the sectoral adaptation planning process

AD/24/11	Establish 3 new groundwater monitoring stations
AD/24/12	Strengthen adaptive capacity and further embed adaptation within work processes and decision-making
AD/24/13	Develop an updated methodology for groundwater recharge estimation and produce new maps for different future climate scenarios
AD/24/14	Develop Ireland's first National Climate Change Risk Assessment setting out the priority impacts of climate change for Ireland
AD/24/15	Operationalise the National Framework for Climate Services
AD/24/16	Increase awareness of water conservation and the importance of protecting Ireland's water resources among students through the Green-Schools Partnership programme
AD/24/17	Establish collaborative mechanisms and build relationships with key stakeholders to guide the implementation of adaptation actions
AD/24/18	Develop business continuity measures to ensure continuity of service provision during severe weather events
AD/24/19	Implement the Body of European Regulators for Electronic Communications Sustainability's workstream, including the project on empowering end users with information on the environmental impact of electronic communications networks, and services to improve sector's environmental transparency
AD/24/20	Increase and improve disaster-risk management for heritage
AD/24/21	Conduct risk and vulnerability assessments for climate-change impacts on heritage
AD/25/1	Develop new Sectoral Adaptation Plans in line with updated sectoral adaptation guidelines

AD/25/2	Develop Ireland's first National Climate Change Risk Assessment setting out the priority impacts of climate change for Ireland
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Appendix 1

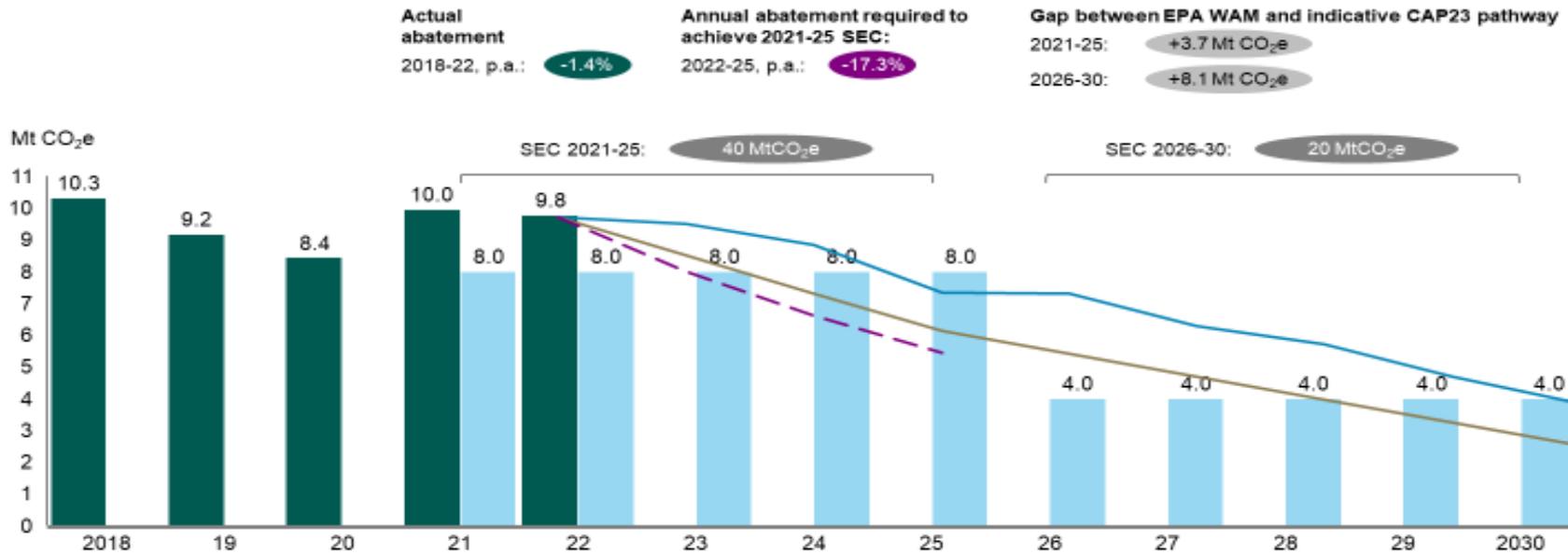
Sectoral Emissions Graphics

Electricity



Electricity Emissions 2018-2030

■ Actual emissions — EPA With Additional Measures — Required pathway to meet 2021-25 SEC³
■ Annualised SECs¹ — Indicative CAP23 pathway²



1. SEC = Sectoral Emissions Ceiling. Based on an even distribution of emissions within each budget.
 2. The indicative pathway provides a linear abatement trajectory that achieves SEC targets for 2025 and 2030 annual emissions and remains within the cumulative SEC per carbon budget (2021-25 and 2026-30). This provides a more gradually phased abatement pathway over time than the annualised SECs per carbon budget period.
 3. Pathway based on annual emissions reductions required to comply with 2021-25 SEC, as provided in EPA (2023), Ireland's Provisional Greenhouse Gas Emissions 1990-2022.
 Source: DECC Climate Action Plan 2023, EPA: Ireland's Greenhouse Gas Emissions Projections, June 2023.

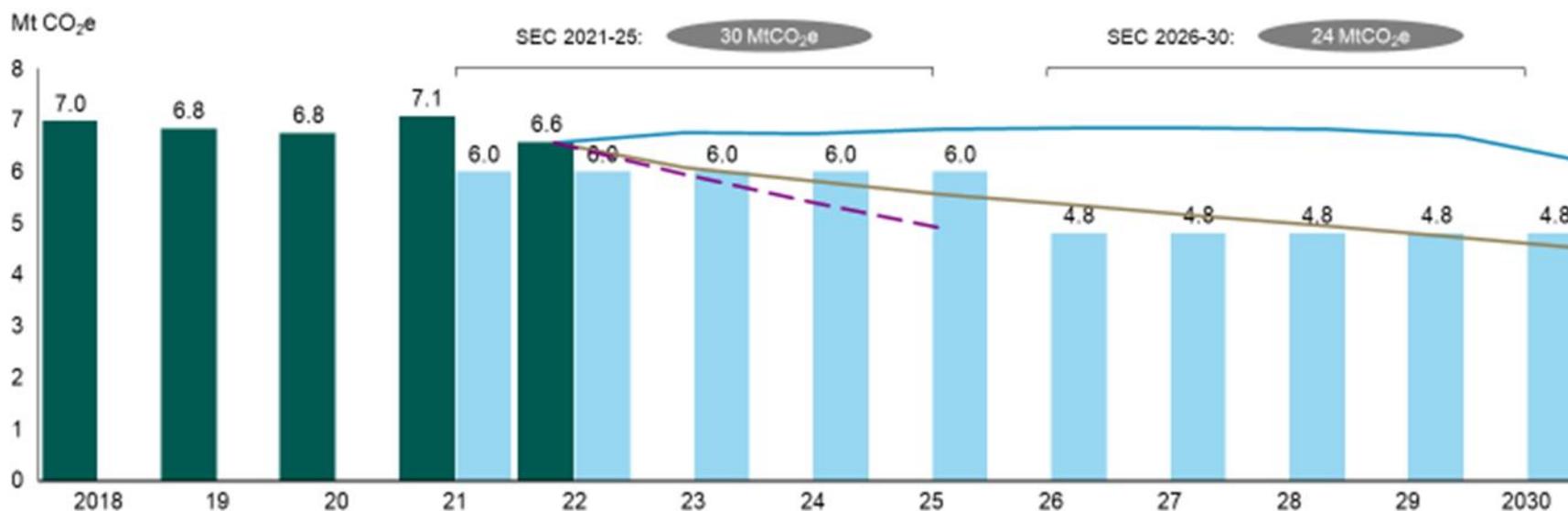
Industry



Industry Emissions 2018-2030

■ Actual emissions — EPA With Additional Measures - - - Required pathway to meet 2021-25 SEC¹
■ Annualised SECs¹ — Indicative CAP23 pathway²

Actual abatement	Annual abatement required to achieve 2021-25 SEC:	Gap between EPA WAM and indicative CAP23 pathway
2018-22, p.a.: -1.5%	2022-25, p.a.: -9.2%	2021-25: +2.9 Mt CO₂e
		2026-30: +8.7 Mt CO₂e



1. SEC = Sectoral Emissions Ceiling. Based on an even distribution of emissions within each budget.

2. The indicative pathway provides a linear abatement trajectory that achieves SEC targets for 2025 and 2030 annual emissions and remains within the cumulative SEC per carbon budget (2021-25 and 2026-30). This provides a more gradually phased abatement pathway over time than the annualised SECs per carbon budget period.

3. Pathway based on annual emissions reductions required to comply with 2021-25 SEC, as provided in EPA (2023), Ireland's Provisional Greenhouse Gas Emissions 1990-2022.

Source: DECC Climate Action Plan 2023, EPA: Ireland's Greenhouse Gas Emissions Projections, June 2023.

Built Environment (Residential)



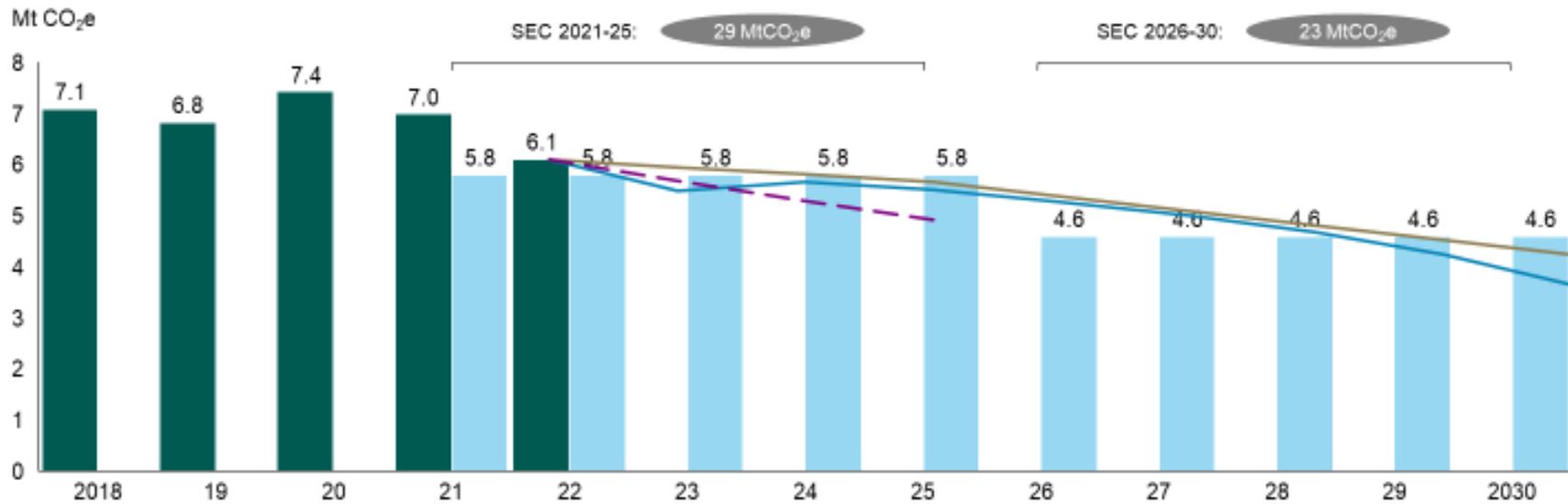
Built Environment (Residential) Emissions 2018-2030

Actual emissions
Annualised SECs¹

Actual abatement
2018-22, p.a.: -3.7%

Annual abatement required to achieve 2021-25 SEC:
2022-25, p.a.: -6.9%

Gap between EPA WAM and indicative CAP23 pathway
2021-25: -0.8 Mt CO₂e
2026-30: -1.2 Mt CO₂e



1. SEC = Sectoral Emissions Ceiling. Based on an even distribution of emissions within each budget.
 2. The indicative pathway provides a linear abatement trajectory that achieves SEC targets for 2025 and 2030 annual emissions and remains within the cumulative SEC per carbon budget (2021-25 and 2026-30). This provides a more gradually phased abatement pathway over time than the annualised SECs per carbon budget period.
 3. Pathway based on annual emissions reductions required to comply with 2021-25 SEC, as provided in EPA (2023), Ireland's Provisional Greenhouse Gas Emissions 1990-2022.
 Source: DECC Climate Action Plan 2023, EPA: Ireland's Greenhouse Gas Emissions Projections, June 2023.

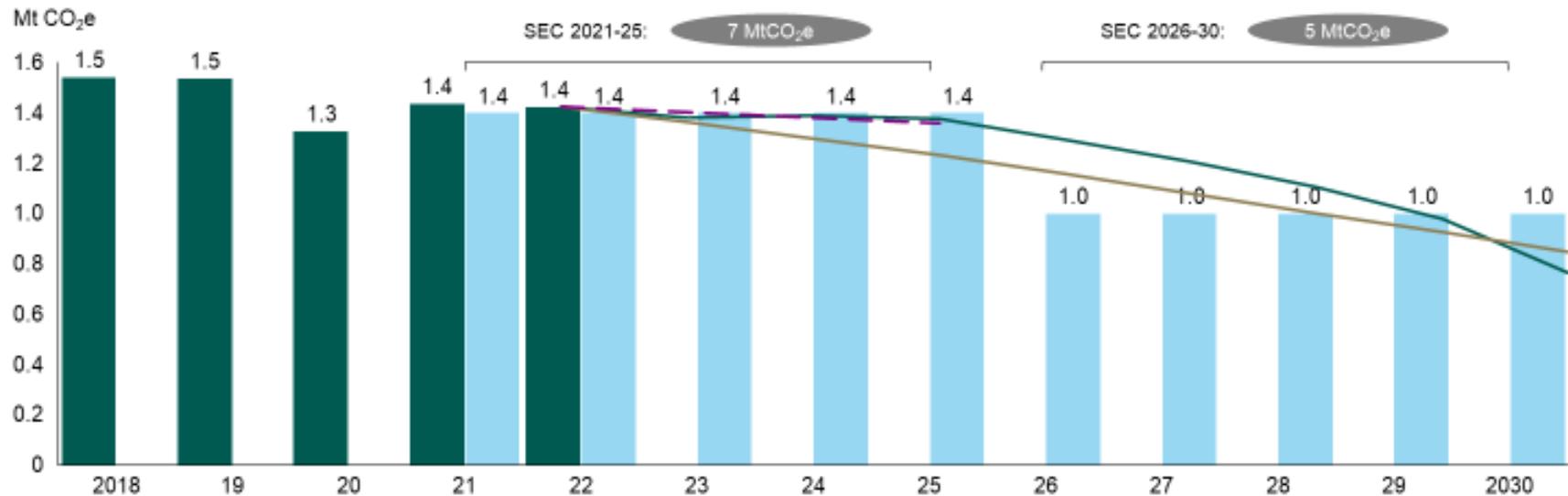
Built Environment (Commercial & Public)



Built Environment (Commercial & Public) Emissions 2018-2030

■ Actual emissions — EPA With Additional Measures — Required pathway to meet 2021-25 SEC³
■ Annualised SECs¹ — Indicative CAP23 pathway²

Actual abatement 2018-22, p.a.: -1.9%	Annual abatement required to achieve 2021-25 SEC: 2022-25, p.a.: -1.6%	Gap between EPA WAM and indicative CAP23 pathway 2021-25: +0.3 Mt CO₂e 2026-30: +0.3 Mt CO₂e
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1. SEC = Sectoral Emissions Ceiling. Based on an even distribution of emissions within each budget.
 2. The indicative pathway provides a linear abatement trajectory that achieves SEC targets for 2025 and 2030 annual emissions and remains within the cumulative SEC per carbon budget (2021-25 and 2026-30). This provides a more gradually phased abatement pathway over time than the annualised SECs per carbon budget period.
 3. Pathway based on annual emissions reductions required to comply with 2021-25 SEC, as provided in EPA (2023), Ireland's Provisional Greenhouse Gas Emissions 1990-2022.
 Source: DECC Climate Action Plan 2023, EPA, Ireland's Greenhouse Gas Emissions Projections, June 2023.

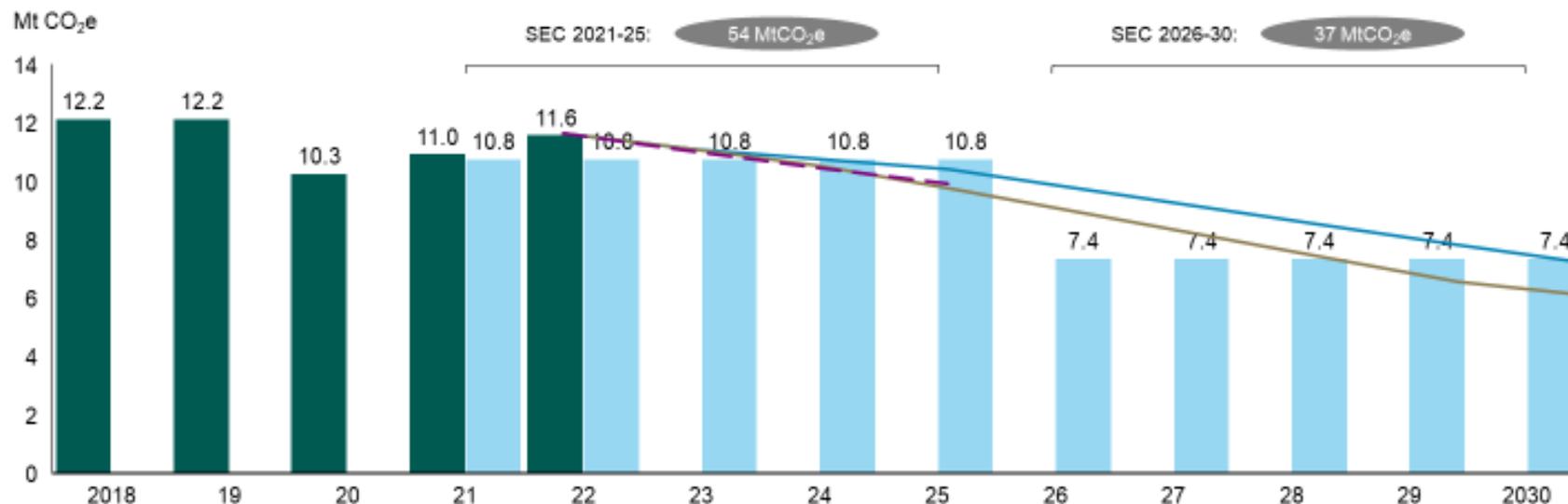
Transport



Transport Emissions 2018-2030

■ Actual emissions — EPA With Additional Measures — Required pathway to meet 2021-25 SEC³
■ Annualised SECs¹ — Indicative CAP23 pathway²

<p>Actual abatement 2018-22, p.a.: -1.2%</p>	<p>Annual abatement required to achieve 2021-25 SEC: 2022-25, p.a.: -5.2%</p>	<p>Gap between EPA WAM and indicative CAP23 pathway 2021-25: +0.9 Mt CO₂e 2026-30: +5.3 Mt CO₂e</p>
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1. SEC = Sectoral Emissions Ceiling. Based on an even distribution of emissions within each budget.
 2. The indicative pathway provides a linear abatement trajectory that achieves SEC targets for 2025 and 2030 annual emissions and remains within the cumulative SEC per carbon budget (2021-25 and 2026-30). This provides a more gradually phased abatement pathway over time than the annualised SECs per carbon budget period.
 3. Pathway based on annual emissions reductions required to comply with 2021-25 SEC, as provided in EPA (2023), Ireland's Provisional Greenhouse Gas Emissions 1990-2022.

Source: DECC Climate Action Plan 2023, EPA: Ireland's Greenhouse Gas Emissions Projections, June 2023.

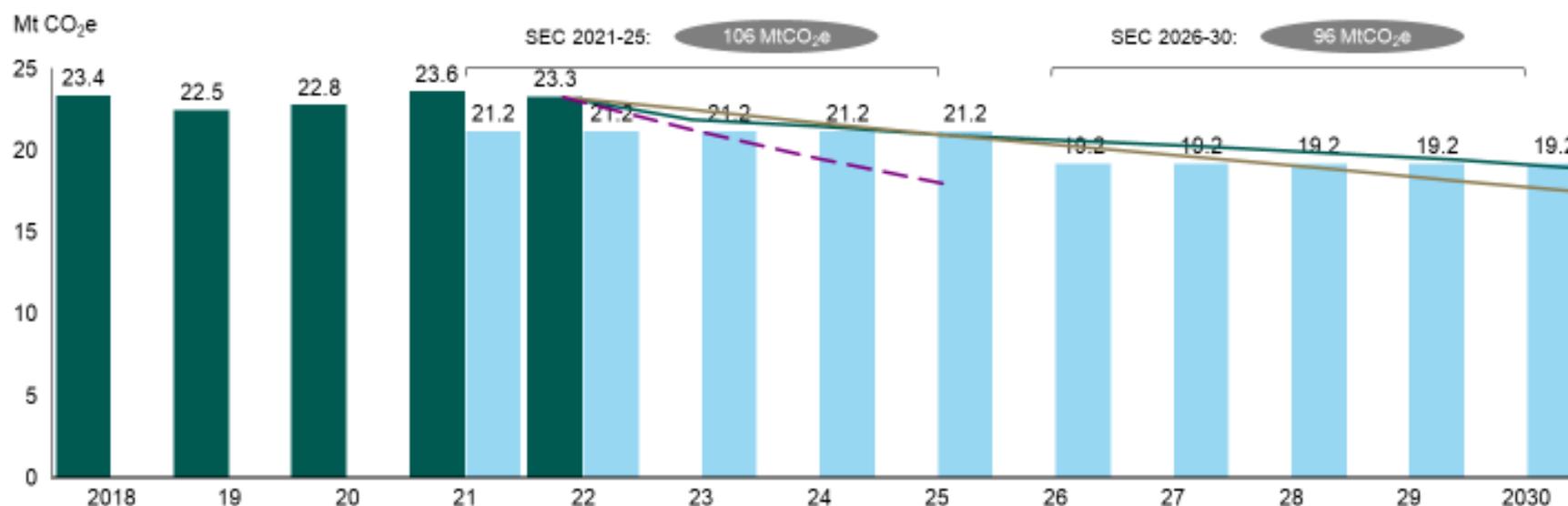
Agriculture



Agriculture Emissions 2018-2030

■ Actual emissions — EPA With Additional Measures - - - Required pathway to meet 2021-25 SEC³
■ Annualised SECs¹ — Indicative CAP23 pathway²

Actual abatement	Annual abatement required to achieve 2021-25 SEC:	Gap between EPA WAM and indicative CAP23 pathway
2018-22, p.a.: -0.5%	2022-25, p.a.: -8.3%	2021-25: -0.8 Mt CO₂e
		2026-30: +4.8 Mt CO₂e



1. SEC = Sectoral Emissions Ceiling. Based on an even distribution of emissions within each budget.
 2. The indicative pathway provides a linear abatement trajectory that achieves SEC targets for 2025 and 2030 annual emissions and remains within the cumulative SEC per carbon budget (2021-25 and 2026-30). This provides a more gradually phased abatement pathway over time than the annualised SECs per carbon budget period.
 3. Pathway based on annual emissions reductions required to comply with 2021-25 SEC, as provided in EPA (2023), Ireland's Provisional Greenhouse Gas Emissions 1990-2022.

Source: DECC Climate Action Plan 2023, EPA: Ireland's Greenhouse Gas Emissions Projections, June 2023.